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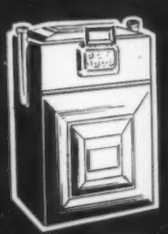

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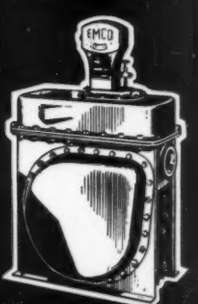

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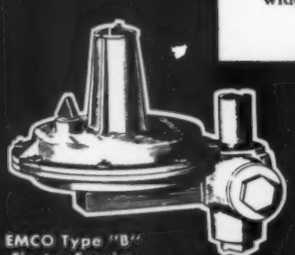

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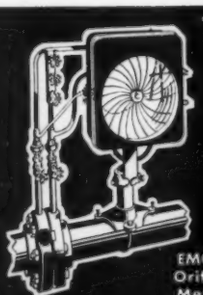

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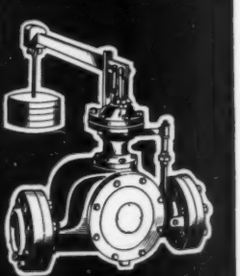

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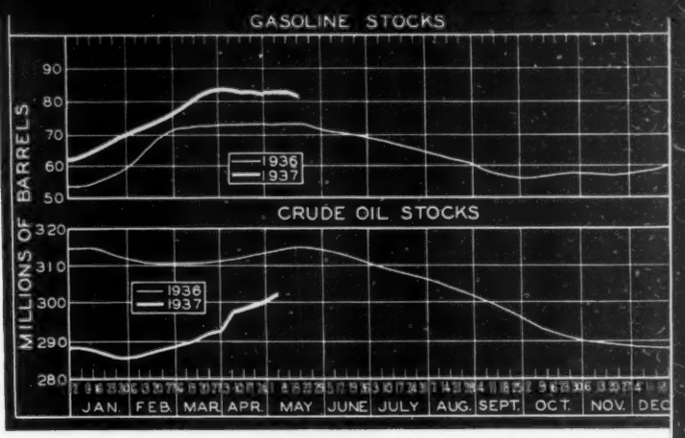


Plan Less Output During June

ANOTHER substantial increase, following three weeks of steady output, has resulted in plans to lower crude production in June. The new peak in crude flow last week, believed to be at least 250,000 barrels daily in excess of current requirements, marks a continuance of a long period of ascending production. If continued through June it will mean that all the crude taken out of storage last year will be back in the tanks, and the industry probably will be faced with a market situation dominated by excess inventories.

CRUDE PRODUCTION *3,549,821 barrels daily average—up 53,724 barrels.*

CRUDE STOCKS *303,249,000 barrels as of May 1—up 2,512,000 barrels.*

GASOLINE STOCKS *80,378,000 barrels as of May 15—down 1,091,000 barrels.*

REFINERY RUNS *3,135,000 barrels daily average past week—up 70,000 barrels.*

The supply-demand data which are being stressed in the efforts to reduce output during the first summer month can be briefly summarized. From January 23 to May 1, 18,038,000 barrels of crude were run to storage, with more than 50 per cent of this total accounted for between March 27 and May 1. This meant an average daily accumulation of 276,000 barrels for the five-week period. With May production running ahead of April it is probable stocks are increasing around 275,000 barrels daily.

Colonel E. O. Thompson, head of the Interstate Oil Compact and Texas Railroad Commission member, suggests a 200,000-barrel cut in June production under May. Others favor a plan in which each state would keep its output within the Bureau of Mines recommendation for June, a policy which has not been followed by several states in many months. Either plan probably would accomplish the objective of balancing supply and demand in June.

It was announced Monday that the bureau's recommendation for Texas during June would be 13,200 barrels daily above May, with an increase of 2,600 barrels daily for Oklahoma. The recommendations for these two states indicate the June total for all states when announced will be only slightly greater than the May figure. Last week's peak production was 216,921 barrels daily greater than the government's recommendation.

The heavy current output reflects general field activity which resulted in 681 completions last week. While no new fields of major importance have been definitely proven so far this year, numerous small pools and extensions have brought a steady increase in drilling and production.

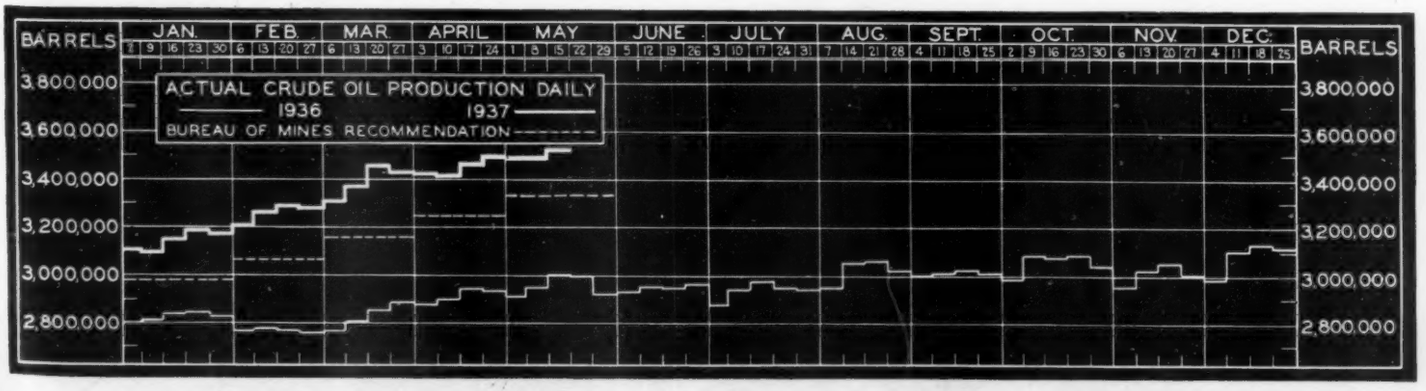
Over the past week a test in Coastal Louisiana turned to salt water after flowing from the greatest depth of record. Important tests were disappointing in southern Illinois and a new well in Marion County, Texas, was an additional indication that important production would be found in that extension area of the Rodessa field.

Daily Average Production for Week

	May 15, 1937	Bur. Mines May est.	May state allowables	May 8, 1937
Oklahoma City	169,700	.....	.....	173,300
Fitts	96,525	.....	.....	83,450
Remainder of State	394,425	.....	.....	388,400
Total Oklahoma	660,650	622,700	622,700	645,150
East Texas	463,547	.....	.....	464,947
West Texas	208,800	.....	.....	209,447
North Central Texas	105,800	.....	.....	103,598
Texas Panhandle	84,297	.....	.....	62,000
East Central Texas	121,448	.....	.....	121,900
Gulf Coast—Texas	332,296	.....	.....	329,399
Southwest Texas	105,151	.....	.....	103,548
Total Texas	1,421,339	1,340,800	1,448,700	1,394,839
North Louisiana	75,725	.....	.....	77,040
Gulf Coast—Louisiana	167,400	.....	.....	175,700
Total Louisiana	243,125	249,400	240,900	252,740
California	656,000	583,300	*303,900	640,500
Kansas	198,475	187,100	187,100	186,225
Arkansas	27,425	28,500	.....	27,245
Eastern Fields	114,000	117,400	.....	118,200
Michigan	44,397	34,900	.....	44,858
New Mexico	114,020	99,800	106,400	113,800
Rocky Mountain area	70,390	69,000	.....	72,530
Total United States	3,549,821	3,332,900	.....	3,496,097

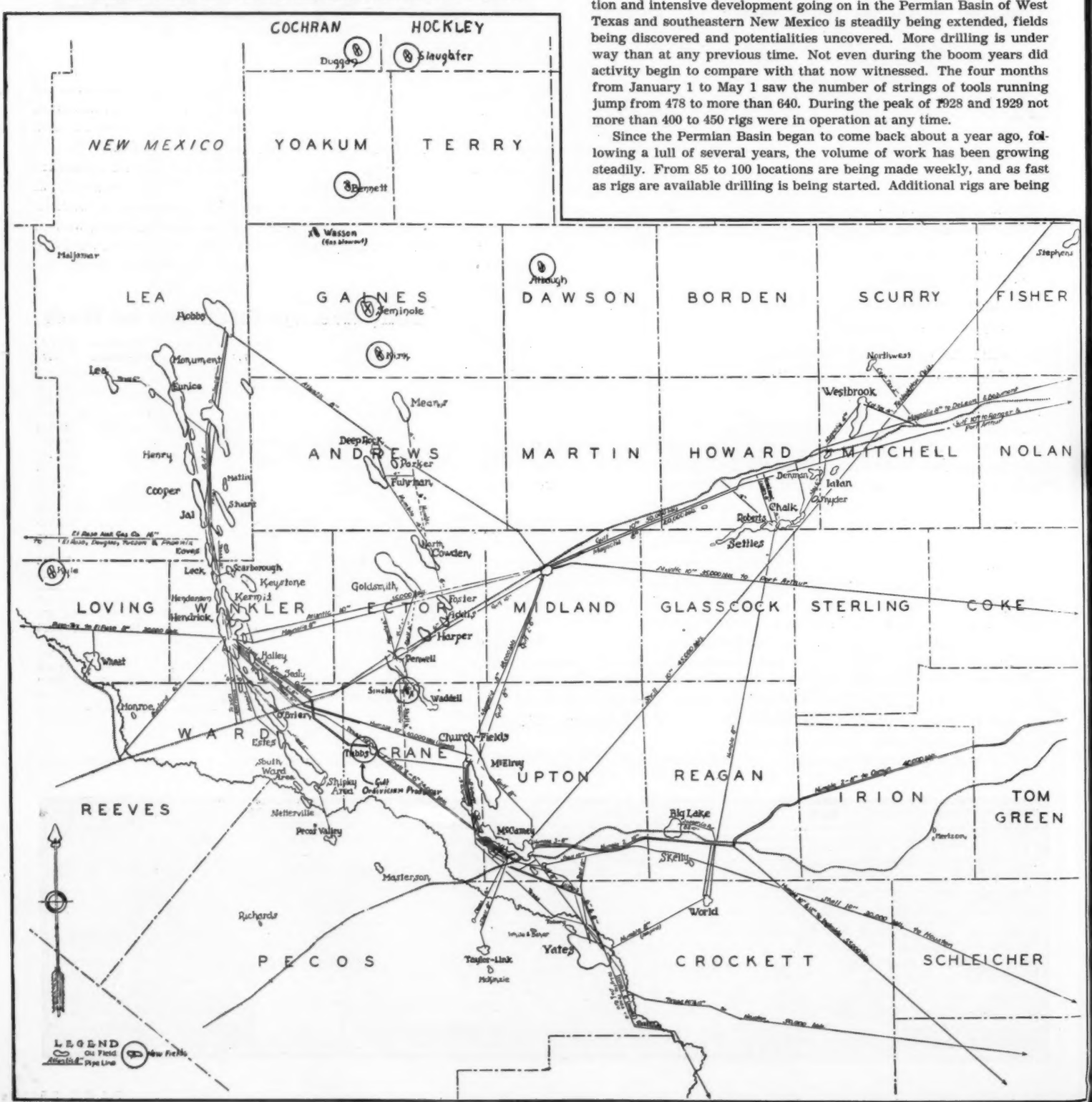
Increase 53,724 bbls. daily.

*Recommendation of Central Committee of California Oil Producers.



Permian Basin Operations
and West Texas Reach

Permian Basin field of West Texas and Southeast New Mexico



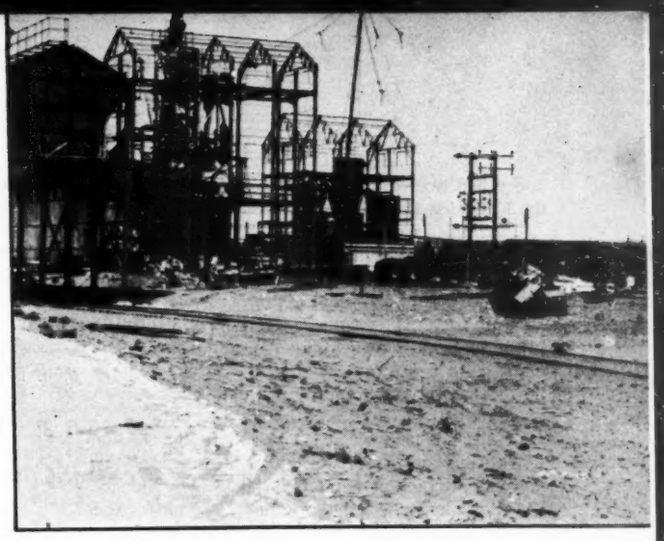
MIDLAND, Tex., May 18.—The widespread exploration and intensive development going on in the Permian Basin of West Texas and southeastern New Mexico is steadily being extended, fields being discovered and potentialities uncovered. More drilling is under way than at any previous time. Not even during the boom years did activity begin to compare with that now witnessed. The four months from January 1 to May 1 saw the number of strings of tools running jump from 478 to more than 640. During the peak of 1928 and 1929 not more than 400 to 450 rigs were in operation at any time.

Since the Permian Basin began to come back about a year ago, following a lull of several years, the volume of work has been growing steadily. From 85 to 100 locations are being made weekly, and as fast as rigs are available drilling is being started. Additional rigs are being

in New Mexico

All-Time Peak

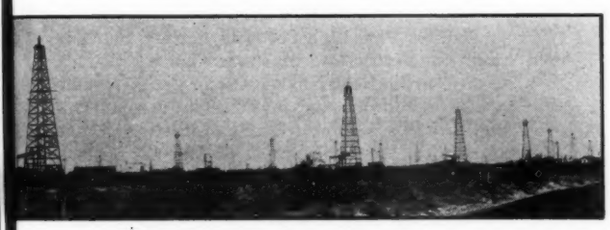
By NEIL WILLIAMS



Carbon black plant of Cabot Corp. under construction at Wickett, North Ward district

moved from other areas. The list of producing wells is being swelled 50 to 75 a week. At the opening of the present month the number had reached approximately 7,440, the highest on record. More than 900 producers were added during the first four months. A year ago there were slightly over 5,000 wells in the district.

With the spread of development, operators are expanding their personnel and facilities, and establishing themselves with greater permanence. Along with this the influx of operators from other districts, including Oklahoma and other parts of the Mid-Continent, the Gulf Coast and California, is keeping up. Equipment manufacturers and distributors are entrenching themselves on a larger scale, building stores and warehouses or enlarging old ones at central points in the area. Expansion of



Penwell field, Ector County

gasoline plant facilities, extension of pipe line systems and other construction are under way.

Intensive drilling along that trend of fields bordering the west side of the Central Basin uplift from the Yates field in Pecos County at the extreme south, to the Monument and Hobbs fields in Lea County, New Mexico, on the north, about 175 miles, is resulting in linking of many of these fields. Many fields now are separate in designation only, and from the Grandfalls and Royalty districts in southern Ward County, northward through Winkler County into New Mexico, and through Jal, Cooper, Eunice and Monument, there exists an almost unbroken line of production.

Drilling also is active along that trend of fields bordering the eastern side of the Central Basin uplift northward from Yates through Crane and Upton counties, Ector County and into Andrews County. While this drilling has been more localized in certain fields, the trend steadily is being linked into one long play.

Until recent months Andrews County marked the north end of this trend of production, but completion as producers of wildcats at scattered locations has brought in counties north of Andrews, opening an extensive area for exploration and development. Included in this group of counties are Gaines, Dawson, Yoakum, Terry, Lynn, Cockran, Hockley and Lubbock, comprising an area more than 90 miles square. Only a dozen or so tests have been drilled in all this area, so with discovery of six pools in these counties within less than a year, the whole area is wide open. The lineup of these fields indicates they are a continuation of the trend northward from Andrews County, and consequently intensive wildcatting is expected.

An interesting leasing play is under way throughout this group of counties, giving Lubbock, in Lubbock County, new importance as headquarters. Both major companies and independents are taking part, and prices for rank wildcat acreage miles from any of the new producers go as high as $15 to $20, record figures for this type in the Permian Basin. While there are large ranch holdings to be leased as single blocks, much of the acreage is in smaller tracts, making it possible for carrying out a checkerboarding program.

Most of the 28 geophysical crews now operating in the Permian Basin are in this group of counties. Geophysics is playing an increasingly important role in the district, and within the past several months there has been a gradual gain in number of crews operating. Among the crews now reported, 17 are seismograph and 11 torsion balance and gravitometer parties.

Although most of the fields found in the district have been found as the result of trend plays, geophysics is credited with several discoveries, including Hobbs and Monument in Lea County, New Mexico, and the new Hockley County pool opened by Texas Co. The last named is in the southwestern part of Hockley County. The discovery, No. 1 Bob Slaughter, good for 500 to 600 bbls. daily, is producing from the regular Permian lime pay at 4,968-5,020 feet. This was the first test drilled in the county. A second test has been started by the company.

This pool is about 11 miles southeast of the new Duggan pool, southeastern Cochran County, opened by Cascade Oil Co. and Honolulu Oil Co. The discovery of the latter pool also was good for about 500 bbls. daily, finding the Permian lime pay around 5,200 feet. Prior to drilling this well, only seven tests had been drilled in the county.

Other pools opened in the north extension group of counties include Bennett, southeastern Yoakum County; Albaugh, northwestern Dawson County; Seminole, central Gaines County; and Kirk, southern Gaines County. Each so far has only one producer, and although the potential importance of each has not been determined, that so many productive spots have been found in a short time has served as an impetus to wildcatting.

Bennett Pool

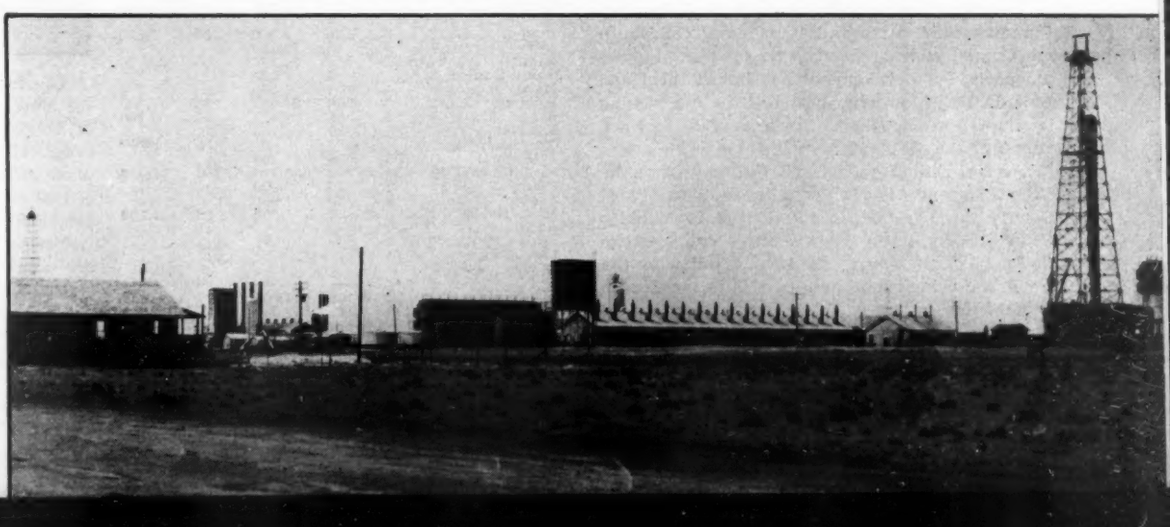
The Bennett pool was opened by Texas Pacific Coal & Oil Co. No. 1 Bennett, which is producing from a total depth of 5,275 feet. The company has started a second test west of the discovery, Cascade Oil Co. and Honolulu Oil Co. have started two tests, one a mile west and the other half a mile northwest of the discovery. Before drilling of the Texas Pacific producer only four tests had been drilled in the county.

In the Albaugh pool Ray Albaugh No. 1 Robinson, the discovery, is estimated good for 4½ to 5 bbls. hourly on the pump at 4,998-5,038 feet, where it was shot. It was completed last December. Only two other tests had been drilled in the county. Contract has been let by E. L. Wilson and associates for a test 1¼ miles southeast of the discovery.

The first well in the Seminole pool was drilled less than a year ago by Harry Adams and Billie Walsh. This made a little gas and was junked. Amerada Petroleum Corp. drilled an offset and brought in the first oil producer, No. 1-A Averitt, and then bought out Adams & Walsh. The third test, east of the discovery, being drilled by Shell Petroleum Corp. blew out while drilling rathole at 4,901-10 feet, and since operators have been pumping mud to kill the gas.

In the Kirk area, southern Gaines County, Landreth Production Co. has completed a small pro-

Natural Gasoline Corp. (Warren Petroleum Co.) plant, Monument field, New Mexico



ducer just over the line from the Means field and the Fuhrman field of Andrews County.

Possibilities of another pool in Gaines County are seen in the Carter and Continental No. 1 Wasson in the north part of the county, which blew out at 3,093 feet, where 7-inch casing was set.

Gulf Oil Corp. recent completion of a prolific producer from the Ellenberger (Ordovician) in the Sand Hills area, western Crane County, has renewed the incentive for deeper drilling, throughout the entire district. Although the Ordovician generally has been regarded as potentially productive throughout the district, this is the first commercial production from that horizon outside of the Big Lake field, Reagan County. Except for the deep wells at Big Lake and a few scattered tests, mostly drilled by Gulf in the Sand Hills area and at McElroy, in Upton County, there has been little drilling below the regular Permian lime.

The Big Lake Ordovician production, development of which began in 1926, is encountered between 8,200 and 8,900 feet. The Gulf well is producing from only 6,014 feet, showing the Ordovician to be rising rapidly to the west. The latter well is rated good for more than 1,800 bbls. daily. On a six-hour test through tubing with three-quarter inch and 1-inch choke, the well flowed 512.78 bbls. with gas at the rate of 2,540,000 feet daily. The oil is 44.9 gravity, and being sweet, is expected to prove attractive for exploration.

Added impetus to wildcatting in the Delaware Basin, just west of the Central Basin uplift, is imparted by development of a new Delaware sand pool in northwestern Loving County. There a second producer has been completed by Mason Oil Co. The discovery well, drilled by the same company, was completed about two months ago, at a total depth of 3,911 feet. Stanolind Oil & Gas Co. is drilling a south offset.

Like the deep Ordovician horizon, the Delaware Basin, embracing Loving, Reeves, western Ward, and northwestern Pecos counties, and a portion of southeastern New Mexico, has been looked upon as holding extensive potentialities although until now there has been only one field producing from it. That field has been producing since 1925, and the oil, also like that from the deep Ordovician, is sweet and commands a premium over other West Texas crudes. The Delaware sand out in the basin is known to be 1,000 feet thick in places, and should the structural conditions be found, a prolific major field is expected. Showings have been found in numerous wildcats drilled to the Delaware sand, but so far no major structures have been located.

Sinclair Prairie Oil Co. has completed a wildcat producer in northern Crane County, No. 1-24 University, 2½ miles west and north of the Waddell field, and about the same distance south of the Penwell field, southern Ector County. Whether it indicates a separate pool or an extension of the Waddell or Penwell fields awaits further drilling. It is about 1½ miles southeast of another wildcat producer, Clark, Cooper & Smith No. 1 Jordan, recently completed as a pumper. Total depth of the Sinclair well is 3,615 feet.

Among the more active spots is the Goldsmith-Cummins field, northern Ector County. Goldsmith and Cummins until recently were considered separate pools, but development has linked them and now drilling is proving not only the intervening territory but extensions. Upwards of 60 rigs are running.

Active drilling extends all the way from the Grandfalls and Royalty area in southern Ward County through the Kermit district in Winkler County, taking in the Sayre, Kermit and Keystone fields. In southeastern New Mexico, following the trend, the principal activity now is in the Eunice and Monument areas. While inside locations of the latter fields have been fairly well drilled up, drilling around the edges and following extensions is active. Both Eunice and Monument are being extended steadily. These fields now have been drilled together, and while some geologists still regard them as separate traps, so far as drilling is concerned they comprise one long field.

New construction work under way in the Permian Basin includes two carbon black plants, the first in the district, two gasoline plants, one small refinery, and extensions to pipe line systems.

SUMMARY OF PERMIAN BASIN OPERATIONS

West Texas District

County and field—	Active operations May 1	Active operations Jan. 1	Prod. wells May 1	Daily prod. May 1	Prod. wells Jan. 1	Daily prod. Jan. 1
Andrews:						
Fuhrman†	5	2	19	1,195	19	1,100
Means	4	2	29	2,300	22	1,260
Wildcats	5	6	....	.....	....	.....
Crane:						
McElroy‡	3	4	410	12,240	403	12,940
Sand Hills (Tubbs)	7	4	21	1,035	12	410
Waddell	4	5	29	2,075	23	1,100
Northwest McCamey	16	18	(*)	(*)	(*)	(*)
Wildcats	8	8	....	.....	....	.....
Ector:						
Cowden	13	10	129	7,450	110	7,080
Foster	11	4	17	1,250	10	540
Goldsmith-Cummins	57	8	68	4,120	25	1,500
Harper	1	0	4	310	3	159
Penwell	11	2	143	6,005	139	5,395
Wildcats	2	4	....	.....	....	.....
Howard-Glasscock:						
Chalk§	17	10	755	16,565	732	16,600
Denman-East Howard	6	10	204	7,050	193	7,055
Wildcats	3	4	....	.....	....	.....
Mitchell-Scurry:						
Northwest and Westbrook	1	1	123	935	123	905
Loving:						
Wheat	1	1	83	1,600	80	1,620
Mason	2	0	2	225	....	.....
Wildcats	3	1	....	.....	....	.....
Pecos:						
Courtney	1	2	2	.....	2	.....
Pecos Valley and Masterson	10	11	78	1,240	80	1,500
Netterville	1	0	8	310	....	.....
Yates	9	11	532	30,615	521	27,820
Wildcats	19	14	....	.....	....	.....
Upton:						
Northwest McCamey¶	16	3	....	.....	....	.....
McCamey	28	27	584	13,005	478	11,235
Wildcats	4	5	....	.....	....	.....
Ward:						
Grandfalls-O'Brien‖	88	87	993	35,260	809	26,370
Wildcats	3	2	....	.....	....	.....
Winkler:						
Skelly-Hally**	10	9	51	1,725	37	1,245
Henderson-Leck	12	10	79	4,540	53	1,475
Kermit††	63	41	512	17,920	340	10,954
Hendricks	5	0	391	12,250	391	12,250
Keystone	10	5	39	2,875	29	1,555
Scarborough	3	0	94	1,845	91	1,855
Wildcats	4	5	....	.....	....	.....
Others:						
Fields	9	3	542	12,420	536	13,462
Wildcats	35	27	....	.....	....	.....
Total West Texas	510	366	5,941	199,360	5,261	167,385

*Included in McCamey, Upton County. †Includes Fuhrman, Tripplehorn and Walker. ‡Includes Church-Fields, Gulf McElroy and McClintic. §Includes Harding area. ¶Includes Northwest McCamey-Hurdle and Webb-Ray. ‖Includes Dobb, Monroe, North Ward, Sealey, Shipley, South Ward and Estes. **Includes Emperor and Bert fields. ††Includes Brown-Altman, Keys and Sayre.

Southeast New Mexico

County and field—	Rigs May 1	Rigs Jan. 1	Prod. wells May 1	Daily prod. May 1	Prod. wells Jan. 1	Daily prod. Jan. 1
Eddy:						
Artesia	1	6	192	850	168	515
Maljamar*	8	4	57	2,465	43	2,550
Getty	..	..	4	200	1	100
Lea:						
Cooper	2	3	86	6,800	99	8,600
Eaves	1	0	15	1,130	....	.....
Eunice	27	11	363	31,175	365	32,700
South Eunice	3	..	14	1,035	....	.....
Hardy	6	4	18	1,150	....	.....
Hobbs	2	0	256	21,485	255	24,300
Jal	1	3	37	1,425	65	3,700
Langlie	7	3	20	1,265	....	.....
Mattix (Stuart)	3	6	18	1,290	....	.....
Monument	42	38	352	30,270	263	12,000
Penrose	14	9	28	2,000	....	.....
Skelly	5	5	16	1,085	....	.....
Misc. fields	..	..	22	1,300	18	1,160
Wildcats:						
Eddy County	4	1	....	.....	....	.....
Lea County	..	14	....	.....	....	.....
Misc.	7	5	....	.....	....	.....
Ttl. N. Mex.	133	112	1,498	104,905	1,277	85,625
Ttl. W. Tex.	510	366	5,941	199,360	5,261	167,385
Grand total	643	478	7,439	304,265	6,538	253,010

*Includes Grayburg and Jackson.

Cabot Corp. is building the carbon black plants, of similar design and size. One is just west of Wickett and the other in the Keystone field near Kermit. In connection with the Kermit plant Cabot Corp. is building an absorption gasoline plant, residue gas of which will be used to operate the carbon black plant.

The Wickett carbon black plant will operate on residue gas from Gulf Oil Corp.'s gasoline plant north of Wickett, in the North Ward field. The new Cabot gasoline plant at Kermit will have a capacity of approximately 20,000,000 feet of gas daily. The carbon black plants are rated at approximately 25,000 pounds each daily.

Phillips Petroleum Co. and Landreth Production Co. are building a new gasoline absorption plant in the Goldsmith field, northern Ector County. The plant, which will have a capacity of 50,000,000 feet of gas daily, will be operated by the former company.

The two new gasoline plants will make a total of 14 in the Permian Basin district. Four of these are in Lea County, New Mexico, and the remainder in West Texas.

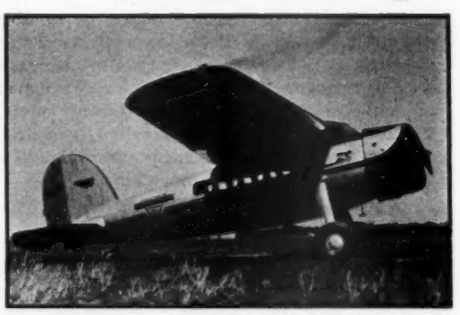
In connection with its gasoline plant in the Monument field, New Mexico, Natural Gasoline Corp. (Warren Petroleum Co.) is completing a 500-bbl. topping plant.

Pipe line construction includes a 6-inch welded line which Shell Pipe Line Co. is laying from the Goldsmith field to its Barnsley station, on the company's 10-inch trunk line from Wink to McCamey and Houston. The line, 50 miles long, will pass through the Penwell field, in the south part of which a pump station is being erected. The line will serve as an added outlet for both the Goldsmith and the Penwell fields.

Humble Pipe Line Co. is laying a 6-inch line from the Means field, northern Andrews County, to the Cowden field, northern Ector County, where it will tie into the company's present system. This line provides a direct pipe line outlet from the Means field. The company at present has a 4-inch line, routed to the Cowden field by way of the Fuhrman field.

Texas-New Mexico Pipe Line Co., which recently was organized to take over the Texas Pipe Line Co.'s pipe line from West Texas to Port Arthur, is making extensions to connect the properties of associated companies.

Use Latest Model



Operating over a wide area in the oil states of the Mid-Continent and Gulf Coast necessitates use of a Lockheed Vega airplane by officials of the Chemical Process Co., Inc., Breckenridge, Tex. This plane is the latest model and is operated by a licensed pilot and trips have been made in it to the principal fields in Kansas, Oklahoma, Texas and Louisiana in addition to several trips to eastern cities and the Pacific Coast.

C. K. West, president, and P. W. Pitzer, vice president of the Chemical Process Co., Inc., are sold on the value of airplanes in the oil industry and may increase their fleet shortly.

Total Gasoline Plant Capacity Advances to All-Time Peak

By D. H. STORMONT

The high rate of new plant construction maintained throughout 1936 and the large amount of remodeling and enlarging work completed on existing units resulted in the total capacity of natural gasoline plants operating in the United States advancing to the highest point in the industry's history. On May 1, 1937, there were 710 plants operating with a total gasoline manufacturing capacity of 10,691,352 gallons daily, an increase in capacity of over 600,000 gallons as compared with the total on May 1, 1936. At that time there were 841 plants in operation with a total capacity of 10,083,687 gallons of which 109 plants with a daily capacity of 615,760 gallons were shut down. The 1937 totals included only 63 shutdown plants with a capacity of 521,500 gallons daily. Therefore the actual active capacity of gasoline plants has increased approximately 700,000 gallons during the past year.

Plant Capacities by States

	No. plants 1937	No. plants 1936	Daily capacity (gals.) 1937	Daily capacity (gals.) 1936
Arkansas	9	10	60,227	62,265
California	109	114	3,217,550	3,377,555
Colorado	2	2	6,500	12,000
Illinois	28	58	19,651	42,886
Kansas	20	23	292,350	240,171
Kentucky	4	6	37,000	39,900
Louisiana	33	41	585,527	445,530
Michigan	3	2	17,000	10,000
Montana	1	1	16,000	9,000
New Mexico	4	3	145,000	120,000
New York	0	2	.....	500
Ohio	11	16	48,700	59,776
Oklahoma	150	184	2,256,530	2,191,458
Pennsylvania	110	125	111,575	125,588
Texas	133	138	3,395,430	2,739,892
West Virginia	85	105	362,512	415,906
Wyoming	8	11	118,800	191,260
Total	710	841	10,691,352	10,083,687

Note—May 1, 1936, includes 109 plants with 615,760 gallons daily capacity listed as shut down. May 1, 1937, includes 63 plants with 521,500 gallons daily capacity listed as shut down.

A study of the accompanying table showing plant capacities by states shows that many major gasoline manufacturing states recorded a substantial decrease in number of plants. Texas, the largest state in capacity, shows a decline of five plants but an increase of 655,500 gallons in daily capacity. California's capacity fell off 170,000 gallons while its number of plants declined from 114 to 109. Oklahoma, third in plant capacity and first in total number of units, shows a decline of 34 plants and a growth in capacity of 65,000 gallons. Pennsylvania, Illinois, Kentucky and West Virginia all show decreases in both capacity and number of plants while Louisiana and Kansas declined in number of plants but increased in capacity.

Despite the falling off in number of plants the amount of new plant construction taking place during the past year exceeded that of any of the past few years, and since the units built were of relatively large capacity their construction more than replaced the capacity lost by the dismantling and abandonment of small uneconomical units. In the 1936 survey there were 10 plants listed as having a daily capacity of 100,000 gallons or over. On May 1, 1937, there were 16 plants in operation with a capacity of 100,000 gallons or over and many more with capacities just under the 100,000-gallon mark. The result of the trend toward larger units has been that the average unit capacity has shown an enormous growth since 1924 when the average per plant was only 3,350 gallons. The present average figure of 15,060 gallons is the highest in the industry's history and represents a substantial increase over the 1936 average of 12,000 gallons.

A great portion of the new plant construction and added capacity placed in operation during the past year took place in Texas, Oklahoma and Louisiana with East Texas and Rodessa leading all other fields in building activity. East Texas has made a great advancement in daily production of gasoline during the past 18 months and Rodessa, since it is a comparatively new field, has also been the scene of much construction activity.

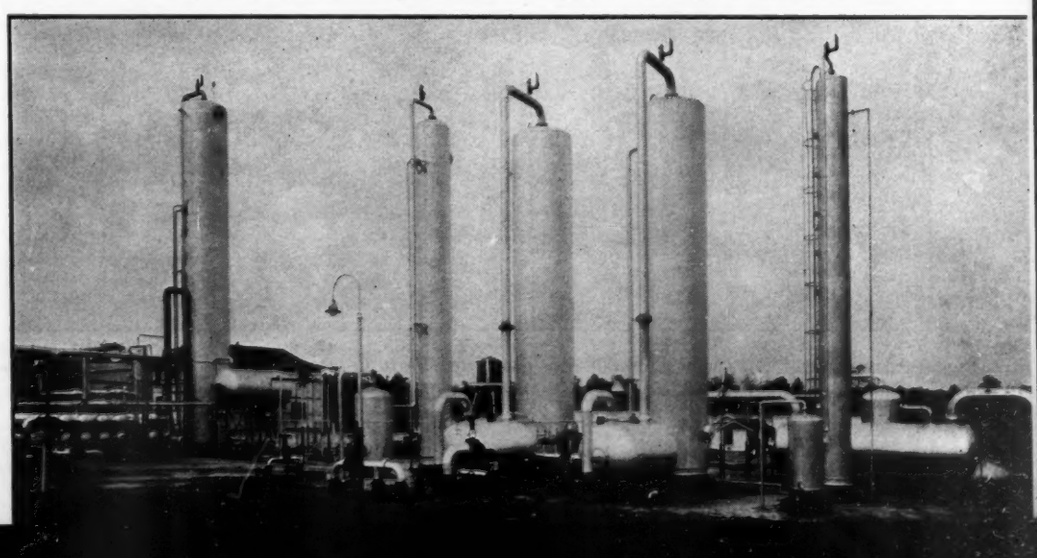
In January, 1935, the East Texas field had a daily average production of only 71,000 gallons. By the end of 1935 the field was producing approximately 242,000 gallons daily and during March, 1936, had a daily output of 340,000 gallons. The field has continued to increase in importance until it is now third in production, being exceeded only by Kettleman Hills and the Panhandle, and during March, 1937, had a production of about 440,000 gallons daily.

Many factors of course enter into this phenomenal growth in capacity; the most important of which are: The normal growth actuated by increased demand for natural gasoline and new capacity added to care for gas resulting from the drilling of additional wells; the increasing demand for liquefied gases; additional capacity to replace that closed down in the Panhandle when stripping activities were stopped by court order; and the growing demand for propane and butanes as charging stock to polymerization units.

Since the gas accompanying oil produced in East Texas is high in propane and butane content, a great portion of the building activity recently taking place in that area may be attributed to this factor. Many of the plants during 1936 added fractionation equipment to recover these fractions formerly vented to the air or burned in flares, a ready outlet being provided by Humble Oil & Refining Co.'s 8-inch line from New London to Bay City, Tex. The entire output of the plants served by this line is turned into the system at New London, at an average vapor pressure of about 41 pounds, and piped to a stabilizing plant at Baytown where the butanes and propanes are fractionated from the natural gasoline. The lighter fractions are then turned over to Humble as charging stock for its new polymerization plant.

The Rodessa field has also greatly increased in importance as a natural gasoline manufacturing area during the past year. A year ago there were three plants in the field with a total capacity of 150,000 gallons daily. Since then four new plants have been built and the capacity of the three units greatly enlarged, the field now having a total ca-

Tide Water Associated Oil Co.'s plant in the Rodessa field, one of the new units built in that field during the past year. The plant has a daily gas capacity of 60,000,000 feet



pacity of 352,000 gallons daily. The enlargement of United Gas Public Service Co.'s Rodessa plant from 60,000 to 155,000 gallons capacity accounted for a great portion of the increase. The new units built in that area ranged in capacity from 10,000 gallons to 40,000 gallons, all being equipped with modern efficient equipment.

Construction work in Oklahoma and Kansas consisted largely of additions to plants already in operation although several plants were added in both states. A few companies operating plants in the Oklahoma City and Fitts pools enlarged their plants as gas from new wells was turned into the gathering systems. Phillips Petroleum Co. enlarged one of its plants in the Oklahoma City field, the plant now having a daily capacity of 200,000 gallons, the largest in the state. Other new plants were constructed in the Edmond, South Burbank and Britton fields. In Kansas, new plants were built in the Burrton and Dexter fields and one near Liberal on the natural gas line of the Panhandle Eastern Pipe Line Co.

Natural Gasoline Industry

	No. of plants	Daily capacity (gallons)
May 1, 1937	110	10,691,352
May 1, 1936	841	10,083,687
May 1, 1935	850	9,909,797
May 1, 1934	882	10,241,989
May 1, 1933	919	10,308,354
May 1, 1932	948	10,536,182
May 1, 1931	987	10,531,511
May 1, 1930	1,071	9,541,320
May 1, 1929	1,124	8,695,727
May 1, 1928	1,229	7,865,652
May 1, 1927	1,148	6,947,264
May 1, 1926	1,063	5,121,000
May 1, 1925	1,143	4,642,561
May 1, 1924	1,012	3,396,961

Practically all states in the Appalachian region and in Illinois, Michigan and Kentucky show declines from the 1936 totals in both capacity and number of plants. Since most of the plants dismantled or abandoned were of the small charcoal type or compression plants for repressuring operations, the decline in capacity was not proportionally nearly as great as in the number of plants. As the volume of available gas becomes smaller in subsequent years the number of plants should continue to grow smaller and their output continue to decline. As an example of the widespread plant abandonment taking place in that area, one company reported 22 plants less in 1937 than in 1936.

In California during the past year there was not an unusual amount of new plant construction or plant enlargement work and as a result both the number of plants and the state's total capacity declined. The capacity of shut-down plants in California also greatly increased during the year, on May 1, 1937, the inactive capacity being 295,000 gallons as compared with 165,305 gallons on May 1 of the previous year. However, the decline in active capacity did not affect the state's production since the output for the first three months of 1937 exceeds that of the previous year by more than 5,000,000 gallons.

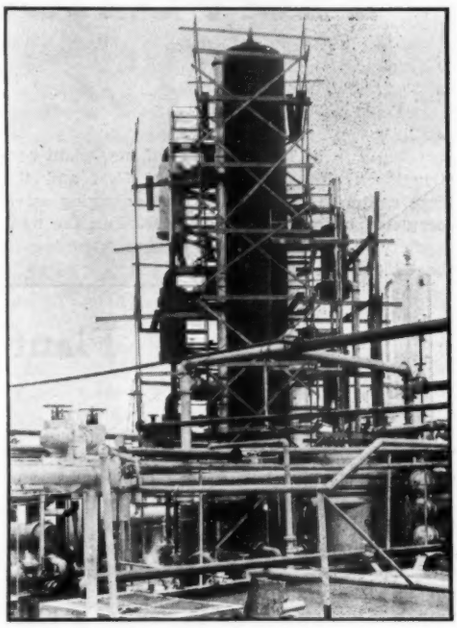
In the matter of prices received for their products, natural gasoline manufacturers during 1936 received substantially higher prices than in the previous year. Not only were the average prices for the year higher, but also they were well above those of the previous year during the period when gasoline movement was heaviest. There was also less fluctuation in price quotations, thereby enabling the gasoline marketer to receive a fair price for his product at all times.

Price Fluctuation

The wide fluctuation in price quotations taking place each year has caused many manufacturers to believe that steps should be taken by the industry to stabilize the price. A study of the Group 3 quotations on the 26-70 grade shows that in 1933 the price varied from 1 to 5¼ cents, in 1935 from 2 to 4⅜ cents and in 1936 from 2½ to 4¾ cents. Many gasoline manufacturers believe that if more storage capacity was built, both by the gasoline companies and by refiners, there would be less tendency for the prices to be forced downward during the season of minimum demand. The gasoline produced during this period could be stored by either the natural gasoline company or the refiner and would not exert a weakening influence on the market. The industry would no doubt benefit greatly from this movement since the refiner, who is already supplying approximately three-fourths of the volatility for his motor fuels, would be less inclined to install vapor recovery equipment if he were assured of a substantial supply at a price in keeping with that received for the finished motor fuel.

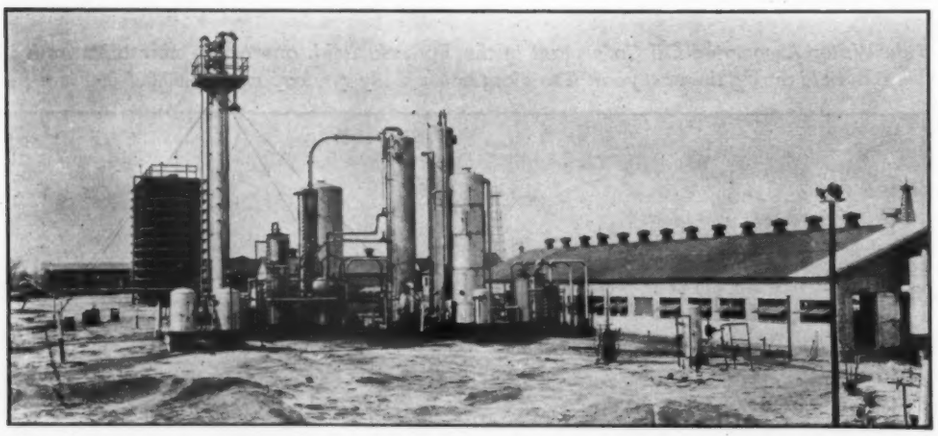
The Oil and Gas Journal's Survey of Personnel of Natural Gasoline Companies Begins on Page 97 and List of Plants on Page 114

While 1936 saw considerable fluctuation in the prices of the various grades of natural, during the first few months of this year there has been decidedly less variation in price quotations. In California the price of 75-85 gravity natural has remained at either 6¾ or 7 cents, and in Oklahoma the Group 3 quotations on the 26-70 grade have varied only from 3 to 3½ cents. Since in California the market situation is more stable, due to the fact that the bulk of naturals produced is by integrated companies, this comparatively small variance in price is not unusual. In Group 3 territory, however, the usual trend is for prices to decline after the heavy demand for blending of winter motor fuels has passed. This year naturals have not only held their own, but during the last few weeks have advanced in price.



Installing an additional low-pressure absorber at Parade Gasoline Co.'s compression and absorption plant at Joinerville in the East Texas field

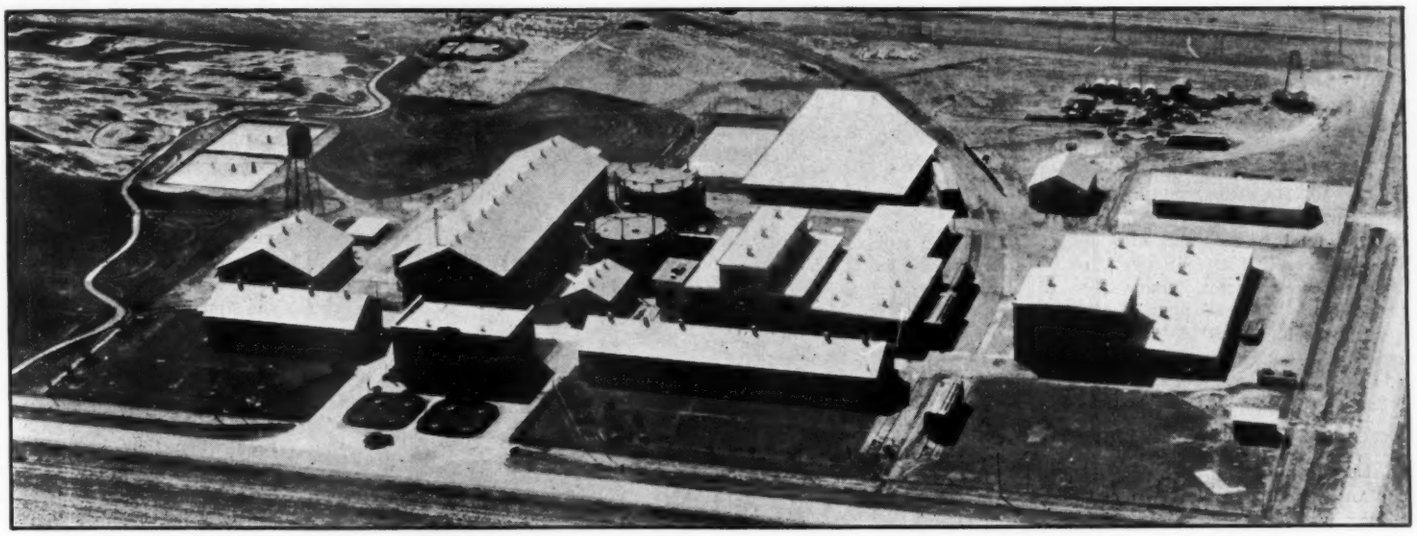
This improved market condition is believed by many marketers to be due to a larger export demand, the industry becoming more stabilized and an increased normal domestic demand caused by the use of more volatile motor fuels. Polymerization, while not as yet playing an important role as a source of motor fuel, is no doubt aiding natural gasoline consumption due to the low volatility of the polymer gasolines. Since either natural or vapor recovery gasolines must be used to bring the motor fuel volatility up to present-day standards, natural gasoline consumption should be greatly aided as the process becomes more widely used.



Arkansas Fuel Oil Co.'s 8,500,000-foot Greggton plant in the East Texas field, where a high-pressure absorption unit is now being installed for recovery of butane and propane

Named Delegates to Paris

Col. Ernest O. Thompson, chairman of the Interstate Oil Compact Commission, has been named by President Roosevelt as one of the official delegates from the United States to the second World Petroleum Congress at Paris, June 14 to 20. Ward W. Keller of San Antonio was also added to the American delegation of which D. E. Buchanan, president of Hanlon-Buchanan, Inc., Tulsa, is chairman. Mr. Buchanan is also chairman of the A.P.I. delegation to which W. G. Phillips of Tulsa has been added.



Bureau of Mines helium plant near Amarillo, Tex.

Helium Reserve in Panhandle Is Sufficient for 180 Years

The Cliffside natural gas field in the Texas Panhandle, owned and operated by the federal government, represents a helium reserve of 1,800,000,000 cubic feet. Estimates made in connection with the Hindenburg investigation now under way at Washington reveal that this reserve is equal to 180 years' supply based on the annual demand in this country of 10,000,000 cubic feet for eight years. It would require between 6,000,000 and 7,000,000 feet of helium to inflate a large dirigible.

The Hindenburg used hydrogen as its inflating material and the investigation has shown that this fact accounts for heavy loss to life and property. It has brought a demand that nonexplosive and noninflammable helium be made available for all lighter-than-air craft. Since practically all of the world's supply of helium is found in the United States such a policy would mean a liberalization of the present legal restrictions relative to the exportation of the product. The present federal statute seeks to conserve the supply in this country for use in time of war and outside shipments can only be made with permission of the president.

At present the bulk of the helium supply is obtained from the Cliffside plant of the government which is operated by the Bureau of Mines of the Department of the Interior. Privately owned plants located at other points have produced small quantities of helium. Their owners have complained that profitable operation has become impossible in recent years due to the low prices on helium quoted by the government whose operations in effect are partially subsidized through the aid received from the government.

The government's first helium plant was located near Fort Worth. The plant for the extraction of the gas from natural gas was completed in 1921. It was first operated by the Navy, but in 1925 was turned over to the Bureau of Mines. The natural gas supply was located in the Petrolia field of Clay County, Texas. The demand for helium was not large and this plant took care of requirements for several years. It was the first large-scale plant to be built for the extraction of helium and its construction followed several years of experimental work covering the development of a commercial operation.

When it became apparent in 1927 the Petrolia natural gas supply would shortly be exhausted the government started to investigate other areas where natural gas contained small quantities of helium. It was finally decided to acquire the Cliffside field in Potter County, northwest of Amarillo, Tex. The geological structure of this field is separate from the large producing structure of the Texas Panhandle which constitutes the largest natural gas reserve in this country.

The government acquired 20,000 acres immediately and later this was expanded to 50,000 acres which covers the entire structure. It is estimated that this field has a reserve of 100,000,000,000 cubic feet of recoverable natural gas from which helium is obtainable with an average recovery of 1.8 cubic feet of helium per 1,000 cubic feet of natural gas.

The natural gas wells in the field are connected to the plant through an 11-mile pipe line. The plant, which cost approximately $2,000,000, is a complete unit. The residue gas after the helium is extracted is sold to a natural gas distributing company.

The method for removing the helium is based on a combination of chemical treatment and low-temperature fractionation under high pressure. The gas is received under a pressure of 600 pounds and is first passed through a sodium hydroxide solution (caustic soda) for the removal of carbon dioxide. The next step is to cool the gas to about 300° F. below zero, which causes 95 per cent of the gas to become liquid.

The cooling medium is chiefly expanding nitrogen. The nitrogen, under a pressure of 500 pounds, passes through an engine from which it is expanded and the exhaust gas cooled in several stages. The combination of the expansion, from 600 pounds to 75 pounds pressure, of the natural gas and the cooling with nitrogen concentrates the gas to approximately 50 per cent helium. The final stage is to subject the gas to a pressure of 2,000 pounds and cool with liquefied nitrogen. The gas is finished to contain better than 98 per cent helium. The natural gas from which the helium is taken is discharged into a pipe line with its heating value improved by the extraction of the helium.

R. A. Cattell, chief engineer of the Petroleum and Natural Gas Division, Bureau of

Colonel E. O. Thompson, chairman of the Interstate Oil Compact Commission and member of the Texas Railroad Commission, favors a policy of expanding the sale of helium to foreign countries.

"The helium-bearing natural gas in the Panhandle of Texas is sufficient in quantity to supply the needs of the world in normal peacetimes," Colonel Thompson said last week. "There is no more reason to refuse to sell helium to foreign nations for normal commercial use than there is to refuse to sell gasoline to the same nations. To pursue progress is to promote peace, and no shortage of helium can be used as a legitimate excuse for refusing the request of foreign nations to be permitted to buy this by-product of Panhandle gas."

Mines, submitted a report covering the status of the helium production situation to the Senate Military Affairs committee. Mr. Cattell's statement was incorporated in the report of Senator Thomas of the Committee on Military Affairs published on May 10. Mr. Cattell said in part:

"Hydrogen has a small advantage over helium in buoyancy. In air at normal atmospheric pressure (14.7 pounds per square inch) and 60° F., 1,000 cubic feet of pure helium will lift 65.82 pounds, and 1,000 cubic feet of pure hydrogen will lift 71.04 pounds. However, use of hydrogen involves a hazard of fire and explosion.

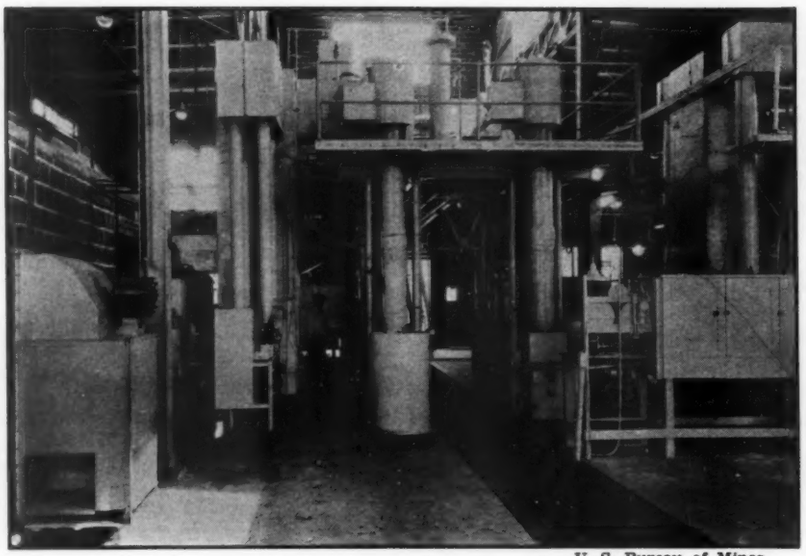
"Another advantage that helium has over hydrogen is that helium can be purified. It is well known that during operation of an airship some of the lifting gas escapes by diffusion through the walls of the cells, but perhaps it is not so generally known that the lifting gas, whether it is helium or hydrogen, becomes contaminated with air, which diffuses into the gas cells. In the case of helium the only effect is a reduction of the lift of the ship. With hydrogen, such dilution not only reduces the lift, but increases the hazard of fire and explosion. The mixture of helium and air can be taken from the ship and purified, by a process similar to that used in extracting it from the natural gas, but there is no known method of purifying hydrogen when diluted with air that is not extremely hazardous. Therefore, the contaminated hydrogen must be wasted and the ship filled with new hydrogen.

"Operating costs of the Amarillo plant from the beginning of production in April, 1929, to the close of the fiscal year 1935 are given in the Bureau of Mines Minerals Yearbook for 1936. Similar figures brought forward to June 30, 1936, show that in 7¼ years of operation the plant produced about 73,000,000 cubic feet of helium and paid about $200,000 into the treasury from the sale of residue gas, with expenditures of about $850,000 ($11.65 per 1,000 cubic feet of helium) in operating and maintaining the plant and gas properties. Deducting the return from sale of residue gas from the gross operating cost gives a net operating cost of about $650,000, or $8.90 per 1,000 cubic feet of helium produced. During this period of 7¼ years, the average rock pressure of the government's wells in the Cliffside field declined only about 2 per cent and the plant continued to improve in efficiency and economy.

"The lowest cost at which helium was ever obtained by the government from any source other than the Amarillo plant was about $34 per 1,000 cubic feet. If the 73,000,000 cubic feet of helium produced at Amarillo prior to June, 1936, were priced at $34 per 1,000, it would be worth $2,482,000. The difference of $1,832,000 between that amount and the $650,000 actual net outgo for operation and maintenance is more than 80 per cent of the government's total expenditures in building the Amarillo helium plant and acquiring and developing the Cliffside field. Thus, on this basis, the government's helium properties at Amarillo have almost paid for themselves at a time when they have barely commenced their useful life.

"The operating costs above mentioned are based on averages for the 7¼ years of operating, including the initial period when the plant had not reached its present state of efficiency and economy and periods when the output was low because of small demand.

"In the fiscal year 1932, when the production was 15,171,680 cubic feet (the largest output for any fiscal year), the gross operating costs were $148,545.26, or $9.79 per 1,000 cubic feet, and the net operating costs were $107,682.83, or $7.10 per 1,000 cubic feet. Under present conditions, with an equivalent output, gross operating costs of about $8.20 and net operating costs of about $5.50 per 1,000 cubic feet could be attained."



U. S. Bureau of Mines

Helium separator building showing separator and purification units

Order by Madison Case Judge on Oaths of Secrecy

MADISON, Wis.—Some witnesses before the federal grand jury which investigated the oil industry here last year apparently misconstrued the effect of their oaths of secrecy, making it difficult for attorneys of indicted companies "to obtain from them facts necessary for preparation of their defense," Judge Patrick T. Stone noted in an order releasing witnesses from the secrecy oath.

The oath had been construed by the court "not to sequester facts known to or obtained by witnesses outside the grand jury room, but merely to prevent disclosure by witnesses of questions propounded, answers given and other facts transpiring in the grand jury room."

Second Carlisle Hearing

HOUSTON, Tex., May 17.—The case of O. H. Carlisle, district sales manager of Gulf Oil Corp., who is fighting removal to Madison, Wis., to face charges of "unlawful conspiracy in restraint of trade and commerce in gasoline," came up May 14 for a second time in a hearing before Federal District Judge T. M. Kennerly.

After first hearing last month United States Commissioner W. F. Carothers refused to commit Mr. Carlisle for removal. The government then asked Judge Kennerly for a new hearing. The case was submitted on the record of the prior hearing, and, following arguments, limited to one hour each for the government and defendant, was taken under advisement.

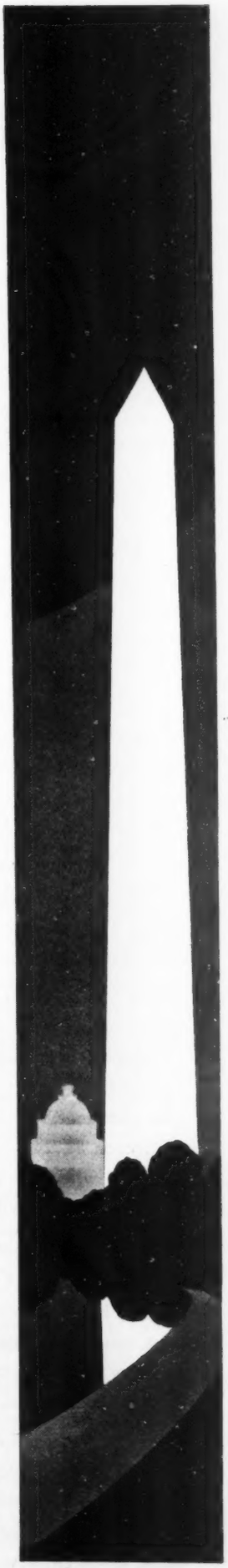
No Pennsylvania Fuel Oil Tax

HARRISBURG, Pa.—The house ways and means committee refused to report the bill to place a tax on fuel oil. The vote was 16 to 7.

Louisiana, Texas and Oklahoma officials conferring at Interstate Oil Compact meeting in New Orleans: Art Walker (Oklahoma); Dr. J. A. Shaw (Louisiana); William G. Rankin (Louisiana), and E. O. Thompson (Texas)

House Votes to Continue Bureau Oil Estimates

By HENRY D. RALPH



WASHINGTON, D. C., May 17.—The controversy which broke out in congress over the extension of the Connally "hot" oil law and appropriations for Bureau of Mines monthly gasoline consumption forecasts is more than a fight between oil producers and marketers. It is a symptom of a growing conflict between the interests of producers and consumers. This clash, submerged during the depression, will increase as cost of living rises, and may seriously interfere with plans of the New Deal for legislation regulating industrial and agricultural production which may increase the cost of goods to consumers.

Almost the entire opposition to extension of the Connally act and appropriations for Bureau of Mines forecasts came from oil jobbers and marketers who contend these two factors, together with the Interstate Oil Compact, operate to keep petroleum production down to where prices increase and that the consumer is denied the benefit of competition. Members of congress from oil consuming states listened to these arguments with great interest, reflected in almost simultaneous action by the house appropriations committee in eliminating the Bureau of Mines forecast and by the house committee on interstate and foreign commerce recommending the Connally law be extended for only two years instead of being made permanent. Representatives and senators from oil-producing states immediately took steps to correct these setbacks, with fair prospects for success, but nevertheless the conflict between producer and consumer interests will continue.

Bureau Statement

The provision in the Interior Department appropriation bill prohibiting the use of any funds for Bureau of Mines monthly forecasts of gasoline demand was a surprise. The expenditure comes out of an allocation of $58,825 for all work on petroleum economics, and in explaining this work to the committee Alfred G. White, chief economist of the petroleum economics division, said:

"I think the bulk of the protests received really come from the Independent Marketers Association and not from oil companies, and their general protest is in the nature of a statement that the forecasts tend to produce less abundance of oil and freeze the source of material for the independent marketer. The bulk of their real protest goes back to any regulation of the oil industry, which, primarily, is under state laws. We are not concerned with the regulations. We are furnishing informational data which states need to determine their programs, and they follow our estimates on forecasts of demand as they see fit. They may follow them or they may raise them. The real factor lies in the hands of the state control agencies. The primary purpose of the forecasts is to give the picture one month in advance of what the demand for oil is going to be; how much crude, under current refinery conditions, is going to be required from the different states to meet the market demand. It is my understanding it is the retail jobbers of oil who object. They, of course, would get along best under the conditions where you had the most abundant oil, the cheapest crude oil, whether it was good conservation or not."

Prohibition Sought

Paul E. Hadlick, secretary of the National Oil Marketers Association, submitted a prepared statement asking that the Bureau of Mines be prohibited from issuing forecasts.

"The position of the people I represent is serious," the statement said. "They are caught between the upper and the lower millstone. This is due to the direct competition of the refiners in the marketing end of the oil business, wholesale and retail. Were there no integrated oil companies operating in the marketing branch and were retail prices to reflect true competition for the business on a marketing basis then the only effect of the forecasts would be a rise in the price of petroleum products to the consumer. The independent oil marketer contends he is today buying in a controlled market and forced to sell in a competitive market. He contends the competition in marketing is aggravated by the desire and ability of the integrated oil companies to absorb losses in marketing out of their profits in production, transportation, and refining."

The house, however, promptly struck out the ban on appropriations for the gasoline estimates from the committee report, thus restoring the appropriation and assuring continuance of the forecasts.

Connally Act

A long list of reasons for extending the Connally law for only two years was given by the house committee on interstate and foreign commerce in reporting out the Dies bill with such an amendment. The committee ignored the Connally bill already passed by the senate, which, if the house upholds the committee, will force the senate to vote on whether the law should be made permanent or extended for only two years.

The report was written by Representative William P. Cole, Jr., of Maryland, who two years ago headed the committee which made a study of the oil industry. The chief reason given for recommending only a temporary continuance of the law was that there is no assurance the interstate compact and state proration laws will continue indefinitely. In discussing the amendment, the report said:

Committee Report

"The committee recommends an amendment extending the law to June 30, 1939. While the law is in aid of all states having conservation statutes, it has functioned solely in East Texas and the large resources of that state make the statutes of Texas of principal concern. The Texas conservation law is temporary and expires September 1, 1939. It was testified by a former chairman who represented the Railroad Commission of Texas, that if this law was not extended the problem could be handled by the state. The committee doubts the entire accuracy of this statement, but is strongly of opinion the commendable improvement in the East Texas field in the past three years and the higher respect for the proration orders of the state commission, evidenced by the scarcity of excess production, might result at a later date in such a statement being justified. The present law has been criticized by some independent jobbers who claim it has curtailed production and created a monopoly resulting in price fixing and the establishment of margins too low for the little independent jobber to operate. It was admitted, however, in the hearings by those taking this position that litigation now pending in which violation of the antitrust law is the basis, because of price-fixing tactics, was encouraged and supported by their group and covered to their mind the objections which they presented to this bill. In other words, the amendments suggested by them were not germane to this legislation and were really violation of other law. Without commenting on this litigation we feel that the determination of that case is important before this law is made permanent. The Interstate Oil Compact expires September 1, 1937. The committee believes this presents an additional reason for the present law not being made permanent."

SPARKS FROM THE NEWS

Explanation of steady climb in crude stocks is found in Bureau of Mines data which show a 8.5 per cent gain in demand has been more than offset by an increase of 12.6 per cent in supply. This kind of relationship has often brought serious trouble to the industry in the past.

Dry holes in Marion and Wayne counties are the latest development in the Southern Illinois play. Leasing now extends from southwestern Indiana to southeastern Iowa.

Buyers are not rushing into the new Wilmington, Calif., field with its supply of low-gravity, high-sulfur oil. In the meanwhile production is mounting so that it is now about three times the May quota.

More than 20 per cent gain in domestic demand for lubricating oils the first quarter assures manufacturers one of the best years in their history. Expansion in industrial demand, as well as continued gains in motor-oil requirements, accounts for the increase.

Completion of another well in Marion County, Texas, gives further encouragement to operators, who are confident that 12-mile extension to Rodessa area will prove to be of major importance.

Operators apparently were merely pausing for breath during the three-week period in which crude production showed little change. They resumed the race last week and boosted production 53,724 barrels daily to a new peak. Current estimates show that the producers are ahead of consumers by at least 250,000 barrels daily.

Natural gasoline manufacturers gathered in their annual meeting in Tulsa this week found their spring market in the most favorable position in years. Their discussions revealed that new manufacturing methods and new products are just around the corner.

The week's outstanding natural gas developments were a 40,000,000-foot completion in the Langston pool of Oklahoma and an 18,000,000-foot well in West Virginia. The latter completed in the Oriskany sand is the state's largest gasser.

West Texas and Southeastern New Mexico are larger than most states, and oil development has reached the point where you can travel 200 miles without being out of sight of an oil derrick.

One reason residual fuel oils are the strongest product of the refinery market is revealed in data showing that production is practically the same as last year despite a gain of more than 8 per cent in crude runs to stills. As more gasoline and other products are taken overhead in modern refinery operations, less is left in the bottom of the still.

TEN YEARS AGO

Pictures, Inc.

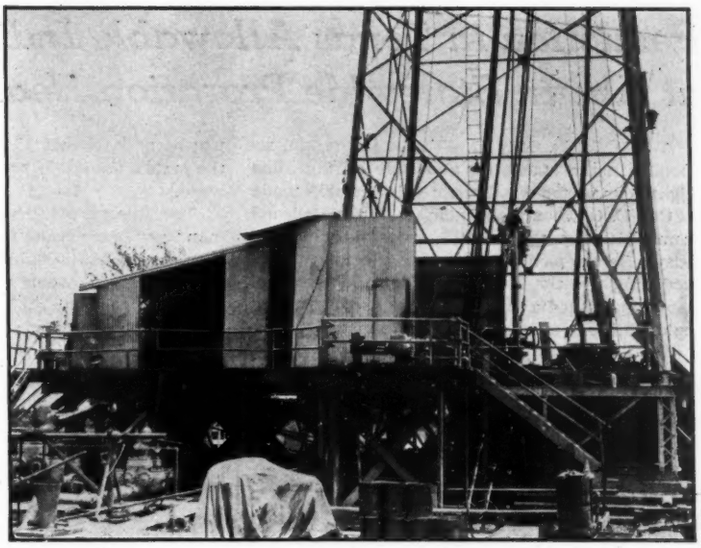
Lindbergh's Paris flight, May 21, 1927, started modern aviation. Its significance to oil industry is explained in special section starting page 64

Standard of New Jersey's net profits last year represented less than 1 cent per gallon on the products sold. Federal and state taxes on gasoline were at a rate which was eight times this net return to the company.

The 180-year supply in one Panhandle natural-gas field, based on present requirements, is the answer to the fear of helium shortage for lighter-than-air craft.

Salt water spoiled what promised to be the world's deepest producer in Terrebonne Parish of Coastal Louisiana. The significance of the test lies in fact that a producing horizon was definitely established and manufacturers demonstrated their equipment would operate satisfactorily below 12,000 feet.

World Record For Deep Oil in Louisiana



By F. L. SINGLETON

HOUSTON, Tex., May 17.—Brought in as the world's deepest oil producer, Humble Oil & Refining Co. No. 1 Ellender, on the flank of the old Houma shallow gas field, Terrebonne Parish, Coastal Louisiana, has been delayed in final completion by efforts to shut off salt water. Operators are of opinion the water is coming from the sand just below where the casing was perforated for the test, and that by plugging back, making a cement squeeze job, and reperforating a little higher in the sand, the well can yet be made a clean producer. This opinion is based on the fact that the well would make drilling mud, wash water and salt water in slugs, and then at times the production would practically clear up to only a comparatively small percentage of salt water.

Production was through 11 gun perforations in the 7-inch casing at 11,620-30 feet which exceeds by 1,051 feet the previous deepest producer, Tide Water Associated Oil Co. No. 12 McGonigle, Ventura Avenue, California.

No. 1 Ellender originally was drilled to 12,165 feet. After 7-inch casing was cemented at 12,101 feet, longest string ever run, the hole was plugged back to 12,050 feet. A first test, made through 3-inch drill pipe with casing perforated at 12,013-18 feet with 11 holes, showed only a small amount of salt water, and the hole was plugged back to 11,630 feet.

For the test at that depth, 2-inch tubing was run to 11,344 feet. A 2-foot perforated nipple was run on the bottom of the tubing as no screen was set.

The most interesting feature of No. 1 Ellender was cementing two of the longest and heaviest strings of casing, consisting of a protection string of 9⅝-inch casing at 8,735 feet and 12,101 feet of 7-inch O.D., 28-pound grade D A.P.I. casing. The latter string had a total weight of more than 338,000 pounds which is about 16,000 pounds less than the record string of 7⅝-inch, 34-pound casing recently cemented in Texas Co. No. 1 Bayou Sale at 10,975 feet.

Production String

The production string was started in the hole April 28 and was run and cemented in 24 hours and 20 minutes. The temperature at bottom was 180° F., which is considered low for that depth. Ice was not needed to cool the water used in mixing the cement and circulation was started when 1,000-pound pressure was built up by the pumps.

With the exception of a special measuring crew, the pipe was run in the conventional manner with a guide shoe and float collars. No trouble was experienced, reflecting the good condition of the hole. The last survey made showed it to be 1½ degrees off vertical which is an exceptionally good record since the hole was deflected around 7,300 feet.

Elapsed time on well including rigging up, coring, setting four strings of casing and one sidetrack job was 288 days. Rigging up was started September 14, 1936, and 241 feet of 20-inch casing was set with 300 sacks of cement, 2,707 feet of 13⅜-inch casing with 400 sacks and a 9⅝-inch string was cemented at 8,735 feet with 400 sacks.

Core taking was facilitated by the use of wire line coring equipment which made it possible to run in and come out of the hole in from 20 to 40 minutes depending on hardness of formation and depth. Approximately 750 cores were taken.

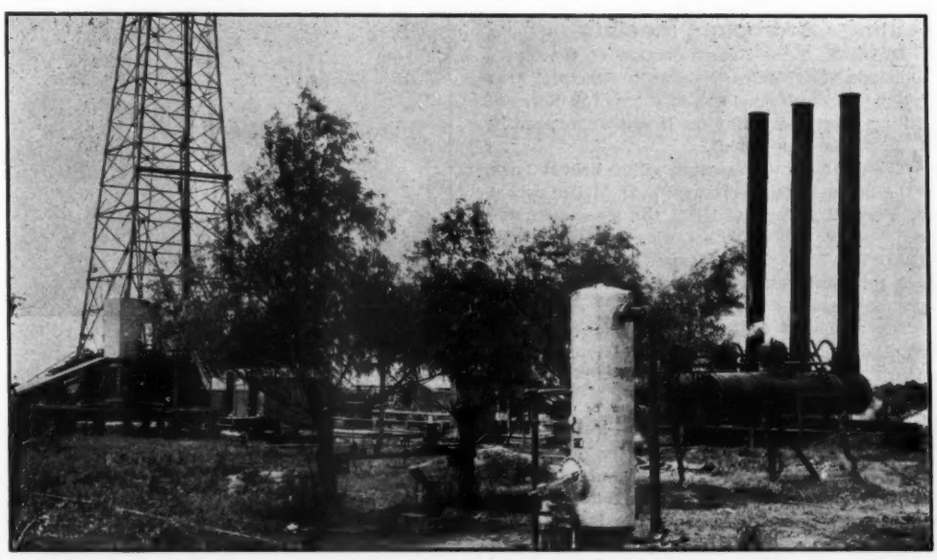
Also included in the drilling time was the time for three electrical logging surveys which showed favorable indications in the 9,000- to 10,000-foot section, 10,000- to 11,000-foot section and from 12,000 feet to the bottom of the hole. The well is producing from the Miocene section, indicative of the great thickening of formation southeastward in Louisiana.

From the bottom of the last surface casing seat at 2,707 feet to the protection casing seat at 8,735 feet, 10-pound mud was used. At this point the weight of the mud was gradually increased, and while drilling below 10,000 feet to the bottom of the hole the weight was increased to 12 pounds. The mud was treated with special chemicals and enabled the operators to hold up the walls of the hole through the thick section of soft and unconsolidated formations, characteristic of the Gulf Coast.

The drilling time was lengthened by one fishing job due to the drill stem becoming stuck at 8,750 feet. After two unsuccessful attempts to recover it, the hole was plugged back to 7,300 feet and sidetracked at approximately 7,314 feet. The test was drilled with a company rig, equipped with a 14 by 14 engine powered by three 125-hp. super-heated boilers. The mud was handled by two mud pumps, one being 16-inch and the other 20-inch. The derrick, 136 feet high with a 30-foot base, was mounted on an 8-foot steel substructure.

Regardless of whether the well is completed for a producer or a dry hole, its real importance is that it was drilled to its present depth with comparatively little trouble, and brings to light the increasing number of wells being drilled to greater and greater depths. This has been brought about by the use of heavier and larger equipment constantly improved by the manufacturer to meet such requirements, and a better knowledge of subsurface conditions acquired by company engineers who have followed the development at previous deep wells.

There has been a total of 21 tests drilled below 10,000 feet along the Gulf Coast, the majority being drilled within the past 18 months. Twelve have been abandoned, seven are producing and the balance are active.



WORLD'S DEEPEST PRODUCER—Humble Oil & Refining Co. No. 1. Ellender

Reduction in Texas Allowable Indicated at Austin Statewide Proration Hearing

AUSTIN, Tex., May 17.—That a substantial reduction in the state's oil allowable during June might be expected was intimated in remarks made by Col. E. O. Thompson, member of the Railroad Commission, at the monthly proration hearing today. He stressed the fact that the industry is producing greatly in excess of current requirements and issued a warning of the dangers of the rapid additions to stocks now being made.

Oil companies and operators represented at the hearing made known they were ready to cooperate with the commission in any action that might be taken to keep the state's production within the limits of market demand. Several made urgent appeals that if any change was made in the state's allowable production that it be downward.

The Bureau of Mines estimate of market demand for Texas crude for June, announced at the hearing, is 1,354,000 bbls. daily, an increase of 13,200 bbls. Allowable production of the state as of May 15 was 1,448,701 bbls., or 94,701 bbls. greater than the bureau June estimate. The allowable production May 15 represented an increase of 36,670 bbls. over May 1 allowable. A total of 491 new wells was completed during the first half of the month.

Nominations have been made by crude buyers for 1,645,825 bbls. of oil daily during June.

Declaring any proration order that results in noncompensated drainage between tracts is void, R. E. Hardwicke, Fort Worth, issued a heated criticism of any basis of allotment that gives a well on a small tract a greater proportionate share than one on a larger tract.

Mr. Hardwicke warned the commission of the dangers of not restricting drilling to necessary wells, declaring any drilling program that forced any operator to drill more wells than necessary resulted in confiscation of property by causing the operator to make expenditures in extra drilling costs. Mr. Hardwicke argued the commission had authority to restrict drilling to necessary wells, and that the restriction could be effected by proration orders which removed the premium on number of wells drilled.

Crude Production Situation

AUSTIN, Tex., May 17.—In an exclusive statement to The Oil and Gas Journal, Col. E. O. Thompson, chairman of the Interstate Oil Compact Commission and member of the Texas Railroad Commission, said:

"Everyone concedes that production is running too high. The excess seems to amount to about 200,000 barrels per day. In spite of open weather during the latter half of the winter and the spring, we have added about 18,000,000 barrels of crude to storage. It is almost a foregone conclusion that this situation will be eliminated at once, with each state cutting back its present production figure on a pro rata basis so that a national reduction of 200,000 barrels will be effected. Texas will contribute her proportionate share to this reduction. This will be 40 per cent of 200,000 barrels, or 80,000 barrels per day. Since all states recognize the present situation and since this seems to be a perfectly fair basis for cutting back to the desired figure, I expect absolutely no difficulty in seeing it accomplished in the immediate future. The threat can and will be removed at once."

No Change in Oklahoma

OKLAHOMA CITY.—No change is likely in the state production allowables for June, it was indicated when the Bureau of Mines notified Reford Bond, chairman of the Corporation Commission, the estimated demand for oil next month would be 625,300 bbls. daily, an increase of but 2,600 bbls., most likely to be allocated to new wells.

The commission will hold hearing May 26, at 9 a.m., to take evidence and allocate quotas to state fields.

THE MARKETS*

CRUDE OIL: *Sales of crude under posted prices were reported in the new Wilmington field of California. The crude is of low gravity and high in sulfur content and only two pipe line systems connect to the field which is producing approximately three times its quota. Crude markets in other areas were steady with supply at the highest level in the history of the industry.*

REFINERY: *Firmer tone in practically all products. Favorable weather in consuming areas has increased movement of gasoline and further gains expected over balance of month. Early buying of furnace oils for next season reported.*

TANK-WAGON AND SERVICE STATION: *Few scattered changes in gasoline quotations with advances exceeding decreases in number.*

FINANCIAL: *Common oil stocks lower but doing better than general market. Average of 30 representative stocks for week ending May 15: High, 41.32; low, 38.79; close, 39.67. Week ending May 8: High, 42.54; low, 40.97; close, 41.39.*

**Details in Market Section.*

Fisher County Wildcat

FORT WORTH, Tex., May 17.—Southern Oil Corp. No. 1 Robinson, NW quarter section 172, Block 2, H.&T.C. Survey, 3 miles northeast of Rotan, Fisher County, is flowing steadily into slush pit through 8-inch casing and 3-inch flow line after topping pay at 3,505 feet, drilling 2 feet in pay, and drilling itself deeper. The pay is below the Noodle Creek lime and about 300 feet above the lime pay found in the Tide Water wells 3 miles northeast. The company has a block of between 3,000 and 3,500 acres. Elevation is 1,947 feet.

On Exposition Committee

FRANK O. PRIOR

Frank O. Prior, president, Stanolind Oil & Gas Co., has been selected as a member of the executive committee of the International Petroleum Exposition in Tulsa, President W. G. Skelly announces. Mr. Prior will take an active part in promotion of the May 14 to 21, 1938, International Petroleum Exposition. Other members of the executive committee are: Alf G. Heggen, Frank J. Hinderliter, Clyde H. Pape, W. M. Bovaird, W. G. Skelly, W. B. Way, general manager, and H. R. Powers.

Big Business Justified Declares Jersey Annual Report

NEW YORK, May 17.—Integrated operations as carried on by big business have played an important part in economic development, W. C. Teagle, president of Standard Oil Co. (New Jersey), declared at the annual meeting of stockholders. The annual statement of the world's largest oil unit showed net profits of $97,774,583 for 1936, equal to $3.73 per share. This was the largest earnings since 1929 and compares with a net of $62,863,192 for 1935.

Excessive taxes were condemned at the meeting. The corporate taxes on undistributed profits were declared to constitute a "guessing game" which has no part in a sound taxing system. Regarding the position of big business, officials said:

"There is doubt in the minds of many people as to the justification for and the need of big business in this changing social era. Yet standards of living are constantly moving upward, and integrated business plays an essential part in this development. Through its willingness to risk capital in new enterprises, it spreads opportunity for employment and reduces luxuries to the price level of necessities. So long as the large unit is efficient and continues to serve the public at lower cost or with better service, it contributes to the improvement of living conditions and advances prosperity for all the people."

Drilling Contractors Meeting

DALLAS, Tex.—Reorganization of the Texas-Louisiana-New Mexico Drilling Contractors' Association will be effected at a meeting of drillers and drilling contractors May 24, it was announced by M. J. Delaney, president.

The reorganization session will be held at 2 p.m. at the Baker Hotel, Secretary W. D. McBee reported. Formed under the NRA, the association has been inactive since the act was held unconstitutional. The body will be revised to perform functions for southwestern drilling contractors which they may legally do together.

Tax problems, labor matters, material prices and other matters are due for discussion, and new officers will be elected.

Kansas A.P.I. Chapter Will Meet

The Mid-Continent section of the A.P.I. will hold a meeting for considering organization of a McPherson chapter at the McCourt Hotel, McPherson, Kans., at 8 p.m. May 21 and extends invitations to all interested. Fred E. Cooper of Tulsa will deliver a travelogue on his recent trip through most of the South American oil fields.

RUGGED

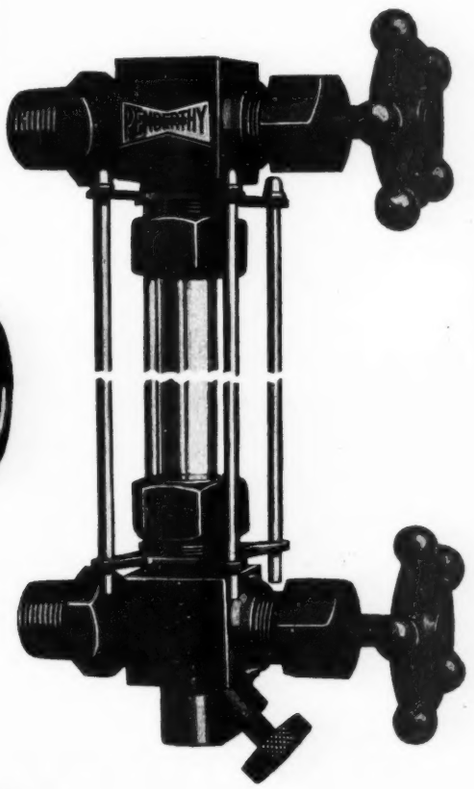
THEY CAN "TAKE IT"

DEPENDABLE operation under the most severe operating conditions is responsible for the universal popularity of these three gages throughout the oil industry. All three can and do "take it"—they are ruggedly built of the highest grade materials by an organization with 48 years experience in the manufacture of quality products. The "All Iron" is made from a modern electric iron alloy, the "Safeguard" from high grade steam metal bronze and the "Navy type" from Navy Bronze Composition M.

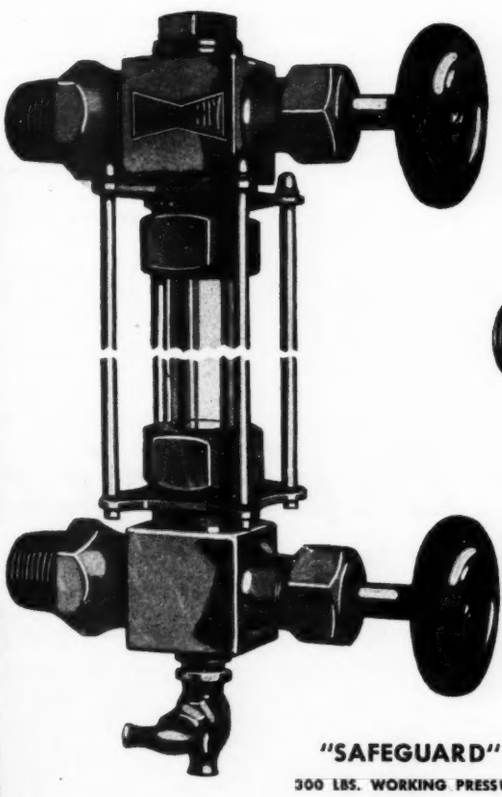
Automatic shut-off is provided on each gage. Upper and lower bodies have ball check valves that seat positively to prevent loss of liquid when glass is broken. The hand operated stop valves are then closed with safety and a new glass inserted.

Every gage is thoroughly tested and carefully inspected at the factory. Write for a copy of the new catalog that gives all the facts.

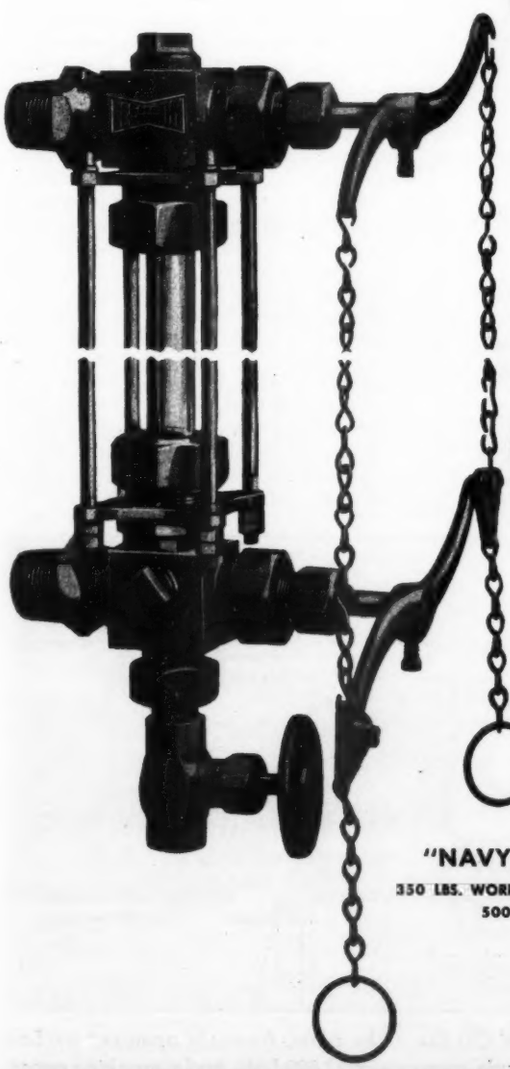
Supply houses everywhere stock Penberthy Liquid Level Gages.



"ALL IRON"
500 LBS. WORKING PRESSURE
750° F.



"SAFEGUARD"
300 LBS. WORKING PRESSURE
500° F.



"NAVY TYPE"
350 LBS. WORKING PRESSURE
500° F.

PENBERTHY PRODUCTS

PENBERTHY INJECTOR CO.

Manufacturers of Quality Products since 1886

DETROIT, MICHIGAN WINDSOR, ONTARIO

Pipe Line Activity

Cut Bank-Great Falls Line

GREAT FALLS, Mont.—Home Oil & Refining Co., W. E. Rice president, has acquired the oil producing properties of Nadeau Brothers, and A. B. Cobb properties in the Cut Bank field, comprising approximately 1,000 acres with 19 producing wells; and the 12-mile 3-inch gathering system of Producers Pipe Line Co. built last year. To be included in the Home company's assets are the producing properties of Rice Oil Co. in the Pondera field. Home Oil & Refining Co. will carry out its pipe line project launched a year ago, a 105-mile line from the Cut Bank and Pondera fields to the company's refinery at Great Falls. Nadeau Brothers and A. B. Cobb will become identified with the Home company, but otherwise there will be no change in management. The Home company contracted a year ago for the production from Nadeau-Cobb properties. The pipe line project will cost approximately $675,000. The Home refinery was modernized last year at a cost of $250,000.

Laying Rodessa Line

Phillips Petroleum Co. is laying a 24-inch gathering line through the Cass County, Texas, side of the Rodessa field, preparatory to serve its natural gasoline plant which is to begin construction soon in that area.

Clay Basin-Salt Lake Line

DENVER, Colo.—Mountain Fuel Supply Co. has let contract for a 21-mile 10-inch gas line from Clay Basin, Utah, to connect with the trunk line terminating in Salt Lake City, Utah. The branch line connects with the trunk line at valve house No. 5 at South Baxter Basin, Wyo. The main contract has been let to Bechtel & Kaiser, Inc., San Francisco, Calif., and H. C. Price Co., of Bartlesville, Okla., has a subcontract for electric welding. Construction begins May 20.

Lion Completes Line

SHREVEPORT, La.—Lion Oil Refining Co. has completed a 4-inch pipe line extending from its El Dorado, Ark., refinery to Champagnolle Bluffs, a distance of 12 miles, on the Ouachita River. Work will soon be completed on the company's loading dock at Champagnolle. It is planned that shipments of refined petroleum products will be moved through this line to the loading dock, thence by barge on the Ouachita and Mississippi to points of distribution.

Sloan and Zook Line

BRADFORD, Pa.—Officials of the Sloan & Zook Co. announce completion of arrangements for transportation of crude oil from its properties in the Allegany field at Bolivar, N. Y., to the Sloan & Zook refinery at Warren. Plans provide for construction of two 15,000-bbl. tanks by the company at a tank farm at Myrtle, Pa., between Ceres, N. Y., and Shinglehouse. Work on the tanks will begin within three weeks.

The company will install its own gathering lines to transport the crude to the tank farm. The Bradford Transit Co. will pipe line the oil from the tank farm to the refinery.

Refinery Expansion

Contracts for Solvent Unit

NEW YORK.—Bradford Oil Refining Co., of Bradford, Pa., has contracted for construction of a 600-bbl. acetone-benzol solvent dewaxing plant which will go under construction as soon as plans and design have been completed and approved. The Lummus Co. is under contract to build the solvent dewaxing plant which is scheduled for completion by the last of 1937. The acetone-benzol process license was issued by the Texaco Development Co.

Dr. E. R. Lederer, president of Bradford Oil Refining Co., a few weeks ago contracted with Alcorn Combustion Co., of Philadelphia, for a small T.V.P. cracking plant designed to handle about 800 bbls. of charge stock per day. The plant will be in operation by October, 1937. In addition, Bradford Oil is increasing its power plant by addition of a 350-hp. unit capable of delivering steam at 200 pounds pressure. Storage facilities at the refinery are being enlarged by 25,000 bbls., and a new filter plant is under construction at present.

Lion to Start Barge Shipments

EL DORADO, Ark.—Lion Oil Refining Co. plans to begin barge shipments of its products to distribution points along the Ohio and Mississippi Rivers and Gulf Coast the latter part of this month. A modern loading dock is nearing completion at Champagnolle landing on the shores of the Ouachita River to connect with a 12-mile pipe line from the company's refinery located here. A 7,500-bbl. storage tank has been erected at the dock and steel barges will be used to transport gasoline, with Memphis, Tenn., as the first unloading point.

President T. H. Barton said that the company, which has extensive retail outlets for gasoline in Mississippi, Tennessee, Alabama and Louisiana, as well as Arkansas, expects to effect a considerable saving in transportation costs by this method of shipment.

Suggest Proration Revision in Buckeye, Michigan

SAGINAW, Mich., May 17.—The proration committee of the Buckeye field in Gladwin County, met here last week to discuss means of taking care of a serious situation. The field now has a potential of 30,000 bbls. per day with a pipe line demand for less than 18,000 bbls. The field is spreading out, and it is believed has a chance of doubling its present potential. It was the sense of the meeting that potentials be taken through tubing and no well be tested for potential until it has been tubed and the production be regulated to demand and prorated on a basis of percentage of potential. This recommendation was submitted to the Michigan Oil Men's Association for its approval.

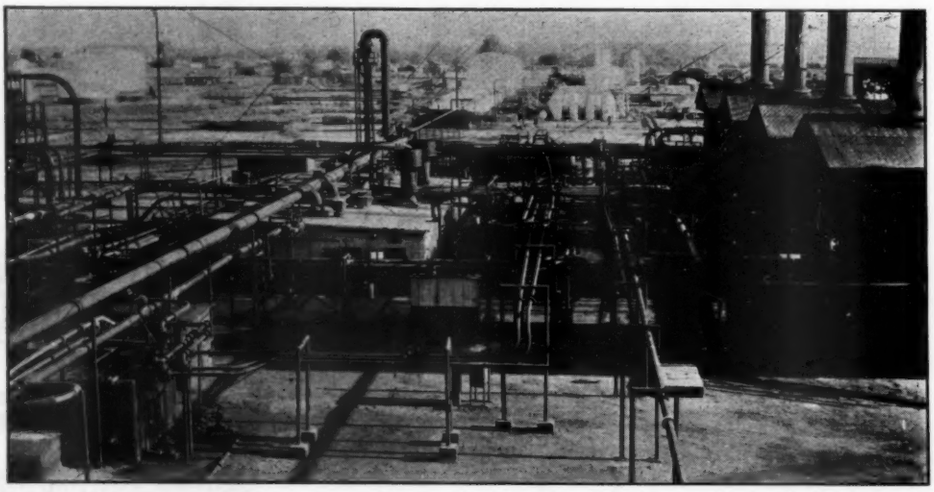
J. Edgar Pew, vice president, Sun Oil Co., at the committee's request made a number of suggestions based on his long experience with curtailment of production in the Mid-Continent.

Simrall Pipe Line Co. is now taking about 10,000 bbls. per day and Pure Oil Transportation Co. about 7,000 bbls., which meets their requirements. It is expected both companies will increase their runs later in the year as their capacity is much in excess of present runs.

Michigan house of representatives last week, by a vote of 69 to 16, passed the Fenlon oil control bill to regulate production phases of the industry not previously specified in Michigan oil legislation.

The bill would authorize the state supervisor of wells, under the authority of the board, to prorate the output of any field, but not to restrict production below the reasonable market demand as determined by actual purchase commitments, except when actual physical waste would result.

Under another clause the advisory board would be given the power to forbid the drilling of wells where it is decided it would be injurious to any field. This would permit the adoption of specific spacing patterns limiting the minimum acreage upon which wells could be drilled.



Bossier City refinery of the Arkansas Fuel Oil Co. The plant, formerly operated by Louisiana Oil Refinery Corp., has a daily crude capacity of 23,000 bbls. and a cracking capacity of 11,000 bbls.

Natural Gasoline

Building Cayuga Field Plant

FORT WORTH, Tex.—The casinghead gasoline plant being erected in the Cayuga field by C. A. Middleton and others of Corsicana is expected to start operations within 30 days. The plant is the first to be erected within the field although Lone Star Gas Co., which takes gas from this field and has a main line running into Dallas, has a casinghead plant on the line just south of Trinidad.

The Middleton plant will have a capacity of around 10,000,000 feet per day and will give many more wells in the field an outlet for their gas. Lone Star is not connected to all the wells in the field, making its major contracts with Tide Water Associated Oil Co. and Seaboard Oil Corp., joint owners of the larger portion of producing leases in the field.

Production Lower in March

The daily average production of natural gasoline declined slightly in March according to a report prepared by the Bureau of Mines. The daily average in March was 5,295,000 gallons as compared with an average of 5,347,000 gallons in February and 4,577,000 gallons in March, 1936. In general, daily average production in all of the leading fields declined, Seminole, Oklahoma, being a notable exception. In this field production increased from 8,209,000 gallons in February to 9,949,000 gallons in March. Production of other major fields for the month was: Kettleman Hills, 15,283,000 gallons; East Texas, 13,616,000 gallons; Panhandle, 17,864,000 gallons and Oklahoma City 11,805,000 gallons.

Total monthly production of the various districts, in gallons, was as follows: Appalachian, 7,950,000; Illinois, Michigan, Kentucky, 1,071,000; Oklahoma, 37,962,000; Kansas, 4,733,000; Texas, 47,061,000; Louisiana, 7,074,000; Arkansas, 900,000; Rocky Mountain, 5,782,000, and California, 51,603,000. Stocks of natural continued to show the usual seasonal increase as stocks at plants and terminals increased about 15,600,000 gallons to a total of 84,505,000 gallons. Stocks at refineries increased about 6,000,000 gallons to 117,054,000.

Shipments to jobbers and retailers and exports totaled 22,554,000 gallons in March. This total was slightly higher than the February total, but the daily average was lower. The daily average vapor pressure of shipments to refineries and exports decreased, but that of the other types increased in March as compared with February. The weighted average vapor pressure for all shipments in March was 20.2 pounds, compared with 20.68 pounds in February.

Natural Gas News

Michigan Gas Proration

MUSKEGON, Mich.—A public hearing on a controversy over proration of natural gas withdrawals from Michigan fields will be held in Lansing June 9 before the State Public Utilities Commission. The dispute arose following action to limit drilling to one gas well in the middle of a 160-acre tract, instead of one to each 40 acres, the previously approved spacing pattern in Michigan. An accompanying reduction in the volume of gas prorated to wells previously drilled on 40-acre tracts aroused criticism and complaint.

The hearing has been called specifically on the complaint of operators in the Austin Township, Mecosta County field, which supplies Muskegon, Muskegon Heights, North Muskegon and Big Rapids with natural gas through two pipe line systems.

Canadian Gas Production

OTTAWA, Ontario.—Official figures place the natural gas production marketed from Canadian fields in February at 3,281,733,000 feet compared with 3,822,291,000 feet in January and 4,011,882,000 feet in February, 1936. For the two months of 1937 the production was 7,104,024,000 feet against 7,510,974,000 feet in the same period of 1936.

Imports of mixed (natural and artificial) gas into Canada in February were 6,138,000 feet valued at $3,683 compared with 7,600,000 feet valued at $5,543 in January.

E.H. Poe Succeeds Captain Higgins as Secretary of Natural Gas Department of the A. G. A.

KANSAS CITY, Mo.—E. Holley Poe, formerly assistant general manager of the Central States Power & Light Corp., with headquarters in Tulsa, was chosen the new secretary of the Natural Gas Department, American Gas Association, which held its annual convention here. He succeeds Capt. A. E. Higgins, who resigned to become vice president of the Pittsburgh Equitable Meter Co. after six years service with the natural gas organization. Mr. Poe is a member of the board of governors of the Associated Industries of Oklahoma and the public policy committee of the Oklahoma Utilities Association. He assumed his new office at once.

Registrations at the five-day convention exceeded expectations. The regular sessions were held in the music room of the new Municipal Auditorium, and technical papers of high quality were delivered. Among these was one by L. A. Farmer, general superintendent of the Oklahoma Natural Gas Co., in which he discussed prolonging the life of gas wells.

"While marked development of methods and equipment has enabled us to drill deeper wells, build longer lines, install better facilities, and in general to obtain greater delivery capacity per dollar invested," said Mr. Farmer, "the fundamental laws of economics are unchangeable, and we must still limit our investment to an amount that can be returned with profit during the life of the irreplaceable reserve of the commodity which we expect to produce, transport, distribute, and sell by virtue of the investment so made.

"The prolongation of the life of natural gas wells is, therefore, one of the fundamental economic problems of the industry. If we may consider that our first aim is to retire the investment involved, then it is the lower portion of the production curve that governs the profit that we are to realize on such investment. In any event, it is the lengthening of the production curve that concerns us most vitally."

E. HOLLEY POE

Spacing Up to the Commission, Not Court, Judge Says

AUSTIN, Tex.—Judge M. B. Blair of the Austin Court of Civil Appeals has just filed a dissenting opinion in a well-spacing rule case, which his colleagues, Justices McClendon and Baugh, decided several weeks ago. Declaring the interpretation of any rule was up to the governmental body which promulgated the rule, Judge Blair wrote:

"By its continuous interpretation of the rule, the court obviously has substituted its own administration for that of the commission. If by court edict the commission is powerless to make rules to prevent waste, the situation is hopeless."

East Texas A.P.I. Chapter to Meet

The East Texas chapter of the A.P.I. Division of Production will meet in the Kilgore Heights School Auditorium near the Federal Tender Board Building at Kilgore, Tex., May 25 at 8 p.m. The subject discussed will be "Present and Future Production Methods in the East Texas Field," with the general discussion led by W. S. Morris, field chairman, East Texas Engineering Association. George L. Nye, Tide Water Associated Oil Co., will follow with a discussion on pumping methods, and Riley Aucoin, Humble Oil & Refining Co., will discuss gas lift as applied to East Texas wells.

Comparative Figures First Quarter 1937-1936

Supply and Demand—Crude Oil (Bbls.)

Three months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Indicated domestic demand‡	Exports	Stocks refinable crude March 31
1937	302,254,000	292,942,000	*9,312,000	*3.2	298,464,000	3,790,000	282,373,000	10,569,000	297,496,000
Daily average	3,358,000	3,255,000	*103,000	....	3,316,000	42,000	3,138,000	117,000	.....
1936	268,455,000	269,897,000	1,442,000	0.5	261,508,000	6,947,000	260,201,000	9,696,000	313,189,000
Daily average	2,950,000	2,966,000	16,000	....	2,874,000	76,000	2,859,000	107,000	.....
Increase, 1937	33,799,000	23,045,000	.....	....	36,956,000	†3,157,000	22,172,000	873,000	†15,693,000
	12.6%	8.5%	.....	....	14.1%	†45.4%	8.5%	9.4%	†5.0%

Supply and Demand—Refinery Products—Motor Fuels (Bbls.)

Three months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks March 31§
1937	132,953,000	114,301,000	*18,652,000	*16.3	132,953,000	.....	106,257,000	8,044,000	86,450,000
Daily average	1,477,000	1,270,000	*207,000	....	1,477,000	.....	1,181,000	89,000	.....
1936	118,690,000	101,354,000	*17,336,000	*17.1	118,690,000	.....	95,499,000	5,855,000	79,038,000
Daily average	1,304,000	1,114,000	*190,000	....	1,304,000	.....	1,050,000	64,000	.....
Increase, 1937	14,263,000	12,947,000	.....	....	14,263,000	.....	10,758,000	2,189,000	7,412,000
	12.0%	12.8%	.....	....	12.0%	.....	11.3%	37.4%	9.4%
Three months— Kerosene									
1937	15,976,000	16,213,000	237,000	1.5	15,976,000	.....	14,309,000	1,904,000	5,396,000
1936	13,948,000	15,889,000	1,941,000	13.9	13,947,000	1,000	14,452,000	1,437,000	5,974,000
Increase, 1937	2,028,000	324,000	.....	....	2,029,000	†1,000	†143,000	467,000	†578,000
	14.5%	2.0%	.....	....	14.5%	†100.0%	†1.0%	32.5%	†9.7%
Three months— Gas Oil and Fuel Oil¶									
1937	118,580,000	130,339,000	11,759,000	9.9	112,548,000	6,032,000	121,260,000	9,079,000	95,159,000
1936	111,845,000	119,213,000	7,368,000	6.6	108,283,000	3,562,000	111,010,000	8,203,000	96,616,000
Increase, 1937	6,735,000	11,126,000	.....	....	4,265,000	2,470,000	10,250,000	876,000	†1,457,000
	6.0%	9.3%	.....	....	3.9%	69.3%	9.2%	10.7%	†1.5%
Three months— Gas Oil and Distillate Fuels									
1937	35,837,000	41,832,000	5,995,000	16.7	35,530,000	307,000	36,228,000	5,604,000	16,724,000
1936	31,974,000	36,158,000	4,184,000	13.1	31,974,000	.....	32,059,000	4,099,000	15,746,000
Increase, 1937	3,863,000	5,674,000	.....	....	3,556,000	307,000	4,169,000	1,505,000	978,000
	12.1%	15.7%	.....	....	11.1%	.....	13.0%	36.7%	6.2%
Three months— Residual Fuel Oils									
1937	82,743,000	88,507,000	5,764,000	7.0	77,018,000	5,725,000	85,032,000	3,475,000	78,435,000
1936	79,871,000	83,055,000	3,184,000	4.0	76,309,000	3,562,000	78,951,000	4,104,000	80,870,000
Increase, 1937	2,872,000	5,452,000	.....	....	709,000	2,163,000	6,081,000	†629,000	†2,435,000
	3.6%	6.6%	.....	....	0.9%	60.7%	7.7%	†15.3%	†3.0%
Three months— Lubricating Oils									
1937	8,240,000	8,063,000	*177,000	*2.2	8,240,000	.....	5,771,000	2,292,000	6,771,000
1936	7,029,000	6,917,000	*112,000	*1.6	7,028,000	1,000	4,779,000	2,138,000	7,137,000
Increase, 1937	1,211,000	1,146,000	.....	....	1,212,000	†1,000	992,000	154,000	†366,000
	17.2%	16.6%	.....	....	17.2%	†100.0%	20.8%	7.2%	†5.1%
Three months— Petroleum Wax (Lbs.)									
1937	130,868,000	136,849,000	5,981,000	4.6	125,160,000	5,708,000	72,858,000	63,991,000	104,653,000
1936	127,907,000	122,898,000	*5,009,000	*4.1	123,200,000	4,707,000	72,421,000	50,477,000	119,684,000
Increase, 1937	2,961,000	13,951,000	.....	....	1,960,000	1,001,000	437,000	13,514,000	†15,031,000
	2.3%	11.4%	.....	....	1.6%	21.3%	0.6%	26.8%	†12.6%

*Excess supply. †Decrease. ‡Crude oil only. §Includes finished, unfinished refinery gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports. Data on demand for refined products are based on refinery shipments.

Crude Oil Run to Stills and Total All Oils (Bbls.)

Three months—	Total imports§	Total exports§	Total crude to stills	Per cent yield gasoline‡	Nat. gasoline production	Total supply all oils*	Total demand all oils*	Stocks all oils March 31
1937	11,276,000	32,254,000	273,563,000	47.2	11,205,000	321,674,000	306,178,000	534,142,000
Daily average	125,000	358,000	3,040,000	....	124,000	3,574,000	3,402,000	.....
1936	12,140,000	27,946,000	252,585,000	45.7	10,227,000	284,420,000	277,315,000	548,805,000
Daily average	133,000	307,000	2,776,000	....	112,000	3,125,000	3,047,000	.....
Increased, 1937	†864,000	4,308,000	20,978,000	....	978,000	37,254,000	28,863,000	†14,663,000
	†7.1%	15.4%	8.3%	....	9.6%	13.1%	10.4%	†2.7%

*Total all oils includes crude and refined products, natural gasoline and benzol. †Decrease. ‡Includes natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.

Illinois-Indiana Program

C. C. Hogg, vice president of the National Petroleum Co. of Titusville, Pa., will speak on "Repressuring Practices" at the fifth annual Illinois-Indiana petroleum conference in Robinson, Ill., May 29. The program follows:

Morning session: "The Nature of Favorable Oil-Bearing Structures in Pennsylvania Formations in Southwest Indiana," C. A. Malott, geologist, Indiana University; "The Seismograph and Its Application to the Illinois Basin," C. M. Boos, Independent Exploration Co., Houston; "The Use of the New Type Gravimeter in Detecting Structures Favorable for Oil," Dr. A. B. Bryan, Carter Oil Co., Tulsa; "Recent Developments in the Illinois Basin and Their Significance," Dr. A. H. Bell, Illinois Geological Survey.

Afternoon session: "Rotary Drilling in Illinois," W. B. White, Felmont Corp., Houston, and F. W. Freeborn, Jr., Adams Louisiana Co., Houston; "Drilling Problems in the Illinois Basin," R. W. McIlvain, Jr., Pure Oil Co., Olney, Ill.; "Oil Well Cementing Practices," C. P. Parsons, Halliburton Oil Well Cementing Co.; "New Methods of Oil Well Shooting," P. E. Lewis, E. I. du Pont de Nemours & Co., Tulsa.

Paul Blazer, Ashland Refining Co., Ashland, Ky., will give some "Thoughts on the Economics of the Oil Industry" at the annual stag dinner Saturday evening.

Type C IDEAL

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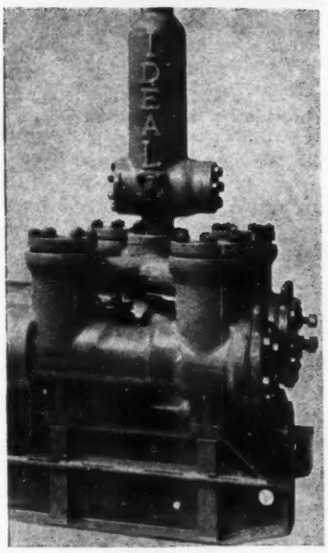
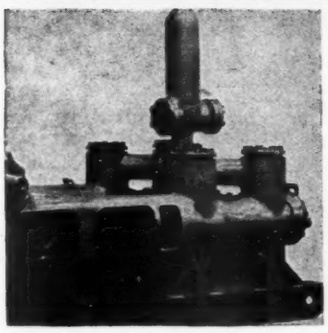
POWER DRIVEN SLUSH PUMPS

High Fluid End Working Pressures



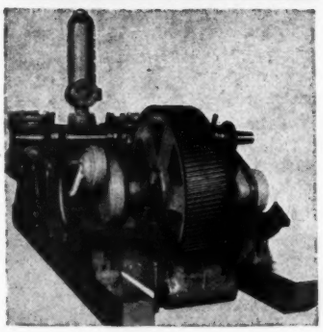
All the advantages of high pressure pump circulation—better control of formation pressures—increased footage.

Slush and Water Proof Crank Cases



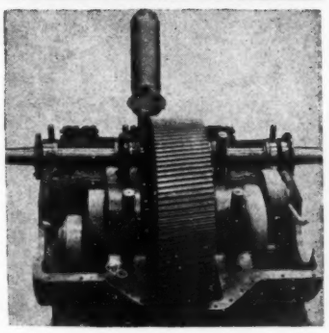
Effective exclusion of slush and water from power ends by Ideal patented baffle wall and plate assembly.

Full Capacity Power Ends



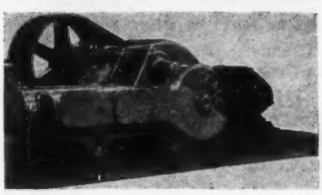
Power ends of sufficient size and strength to operate fluid ends at sustained maximum capacity—assures same performance as corresponding Ideal Steam Pumps.

Shafts Mounted on Roller Bearings

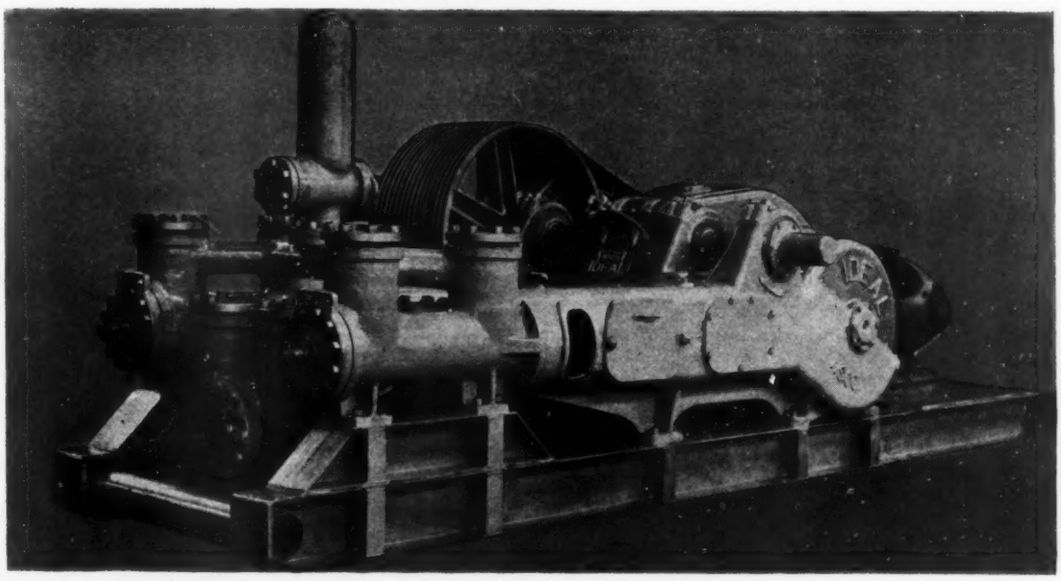


Gives very desirable short overhang at both ends—eliminates tendency of pinion shaft failure due to bending load.

Convenient Driving Arrangements



Pumps may be driven from either side, direct connected or with V-Belts—Pinion shafts tapered for easy removal of sheaves.



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the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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The Crude Situation

The continuous addition to crude oil storage for the past 14 weeks leaves no doubt that the industry is again confronted with an excess of supply over demand. From January 23 to May 1 a total of 18,038,000 barrels, or 184,000 barrels daily, was added to stocks.

Beginning with a small increase, the tendency has been upward, with the increase during April at the rate of approximately 276,000 barrels daily. Official figures for May are not available, but reports from representative companies indicate large additions to inventories continue to this time.

The remedy for this trend which will lead to serious trouble in the near future, if not corrected, is as apparent as the cause.

Starting with the first of the year, several oil producing states began to pay no attention to the monthly recommendations of the Bureau of Mines. The allowables of several of the more important oil states ran from three to ten per cent above the recommendatory levels estimated by the bureau.

In fact, the tendency has been to shy away from yardsticks. The states paying no attention to the Bureau of Mines recommendations, were followed by the producers paying little or no attention to the state allowables. Thus the trend has been farther and farther from the indicated path.

It is true the figures show that the Bureau of Mines estimates of requirements during part of last year were too low and states felt justified in shooting above the recommendations, but the data for the past several weeks prove that the bureau's recommendations are sufficiently high as a guide for current producing operations.

The policy of producing above the bureau's recommendations is responsible for the plight of the industry at this time. The obvious remedy is to return to observance of those recommendations as quickly as possible.

The bureau's estimates are a necessary guidance to avoid waste through overproduction. The industry is now facing the effect of disregarding them. Abolishing them would have the same deplorable consequences.

There is nothing to complain about in the demand. Government figures show that the demand for crude oil in the first three months of the year increased 8.5 per cent and the demand for gasoline 12.8 per cent as over the same period of 1936. Demand is all right. The trouble lies with production which has been allowed to run far ahead of even that extraordinary increase in demand.

Chairman Ernest O. Thompson, of the Interstate Oil Compact Commission, suggests that "each state cut back its present production figure on a pro rata basis so that a national reduction of 200,000 barrels daily will be effected." Texas, he says, will contribute its proportionate share to this reduction, 40 per cent, or 80,000 barrels per day.

The unnecessary, burdensome and dangerous additions to storage have gone on long enough to show they were not due to a momentary miscalculation attributable to the method of reporting statistics, as has happened. When additions to storage over a 14 weeks period dwarf even a 10 per cent increase in the demand for all oils there is something seriously wrong that calls for immediate action.

Oil News from Foreign Lands

Chinese Consumption

Kerosene remains the principal petroleum product consumed in China, but gasoline is on the increase according to a report covering 1936 from the Bureau of Roads, National Economic Council, Nanking, China.

During 1936, kerosene imports by China totaled 104,429,526 U. S. gallons, or nearly 2,500,000 bbls., while gasoline totaled 45,513,620 gallons, or a little more than 1,000,000 bbls.

Petroleum imported by China in 1936 and the value is shown in the following table supplied by T. K. Chao, vice director of the Bureau of Roads:

Kinds—	Quantities	Values (HK. Tls.)
Kerosene	*104,429,526	25,600,438
Gasoline	*45,513,620	14,589,210
Lubricating oil	*13,124,428	5,036,368
Fuel oil	†313,480	10,382,026
Paraffin wax	‡443,808	4,237,307
Lubricating grease	‡20,322	193,203
Asphalt	‡198,742	464,602

Note: One picul is equivalent to 60 kgs. Honkong taels (the medium of value expression) are equal to approximately .306 cents in U. S. currency. *U. S. Gallons. †Metric tons. ‡Piculs.

New Venezuelan Record

Another new production record was established in Venezuela during April when crude oil output climbed to 14,735,714 bbls., a daily average of 490,790 bbls. Chief factors were yield of 260,000 bbls., from Mene Grande Oil Co. property in the Tia Juana pool, immediately north of Lagunillas; higher yield from Lagunillas and more modest increases from Pedernales and Quiriquire. There was also an increase of about 10,000 bbls. from the Mene Grande field operated by Caribbean Petroleum Co.

Although April contained one less day its production was nearly 500,000 bbls. more than the March yield of 14,240,478 bbls. So far the January prediction that Venezuela production would pass the 500,000-bbl. per day mark in 1937 appears to have been modest. Mene Grande Oil Co. is proceeding with development in the Tia Juana pool where several hundred locations appear definitely proven for production. Additional drilling in Lagunillas is more than offsetting normal declines and nearly every month the field establishes a new production record. In April, Lagunillas production of 8,231,933 bbls., was the highest and was 199,174 bbls. above March. Lago Petroleum Co., Venezuela Oil Concessions, Ltd., Standard Oil Co. of Venezuela and Mene Grande Oil Co., (formerly Venezuela Gulf Oil Co.) are all producing substantially more than at the same time in 1936.

For the first four months Venezuela has produced 48,924,864 bbls. despite the strike from December through most of January and curtailed operations through part of February. Since the middle of February, however, drilling and production has been accelerated.

A report reached New York through a Venezuela representative of Pantepec Oil Co. of Venezuela that Standard Oil Co. of Venezuela's Tabasco well, drilled on Pantepec acreage under a development contract, flowed 390 bbls. of 15 gravity through a half-inch choke on tubing in six hours, that the well was flowing at the rate of 400 to 500 bbls. per day during the last six hours and the gravity appeared to be slightly higher than at the start.

The Tabasco well is on a block of 25,000 acres held under concession by Pantepec. Standard Oil Co. of Venezuela is under contract to drill six tests on Pantepec acreage in a two-year period which expires in 1938 and four tests have been completed or drilled to shut-down depths. Further exploration is under way by Mene Grande Oil Co. and by Standard Oil Co. of Venezuela on acreage owned by it exclusively, or by other affiliates of Standard Oil Co. of New Jersey.

The Venezuela crude oil production statistics for April follow:

VENEZUELA CRUDE PRODUCTION

By Fields

	April, 1937	April, 1936	Daily. av. April. 1937
Lagunillas	8,231,933	7,340,473	274,398
La Rosa-Ambrosia	2,159,666	1,667,223	71,989
Mene Grande	1,101,277	1,117,710	36,309
El Mene	66,150	64,860	2,205
Tarra	347,100	426,420	11,570
La Paz	18,166	21,750	606
Concepcion	94,842	103,290	3,161
Cumarebo	212,129	244,345	7,071
Quiriquire	2,163,955	1,837,146	72,132
Pedernales	80,496	.....	2,683
Tia Juana	260,000	.....	8,666
Total	14,735,714	12,823,217	490,790
Daily average		427,441	
Daily av. March, 1937		459,375	
Total March, 1937	14,240,478		

By Companies

Lago Pet. Co.	4,801,152	4,289,743	160,039
Venezuela Oil Con.	3,883,382	3,174,090	129,446
Stand. of Venezuela*	2,862,621	2,429,308	95,420
Caribbean Pet. Co.	1,101,277	1,117,710	36,309
Colon Oil Corp.	347,100	426,420	11,570
Mene Grande†	1,621,000	1,260,000	54,033
British Controlled	66,150	64,860	2,205
No. Venez. Pet. Co.	53,032	61,086	1,768
Total	14,735,714	12,823,217	490,790

*Includes Creole's share in La Rosa and Lagunillas. †Formerly Venezuela Gulf Oil Co.

Gulf to Drill in Britain

Gulf Oil Corp., through an English subsidiary, Gulf Exploration Co., Ltd., has entered the quest for petroleum production in Great Britian. The company has been granted exploration or prospecting license aggregating about 1,277 square miles. The Gulf license covers areas in Kent, Sussex, Dorset, Wiltshire, Somerset and Yorkshire. New licenses have been granted to D'Arcy Exploration Co., Ltd., subsidiary of Anglo-Iranian Oil Co., covering approximately 1,649 square miles in Kent, Sussex, Surrey, Yorkshire, Nottinghamshire, Derbyshire, Staffordshire, Shropshire and Cheshire.

Netherlands Indies Increase

Bolstered by a substantial increase during the last quarter of 1936, production from Netherlands Indies rose to an all-time peak of 6,436,882 tons, or about 45,658,174 bbls. During the last quarter, production was 1,769,954 tons, or 12,389,678 bbls., an increase of 1,218,000 bbls., over the third quarter of 1936 and 1,484,000 bbls. in excess of the same quarter in 1935. The increase was almost entirely due to increased drilling in proven fields. One field was reported by Donald W. Smith, American Trade Commissioner at Batavia, Java, to have doubled its 1935 production.

Hope to Avert Mexican Strike

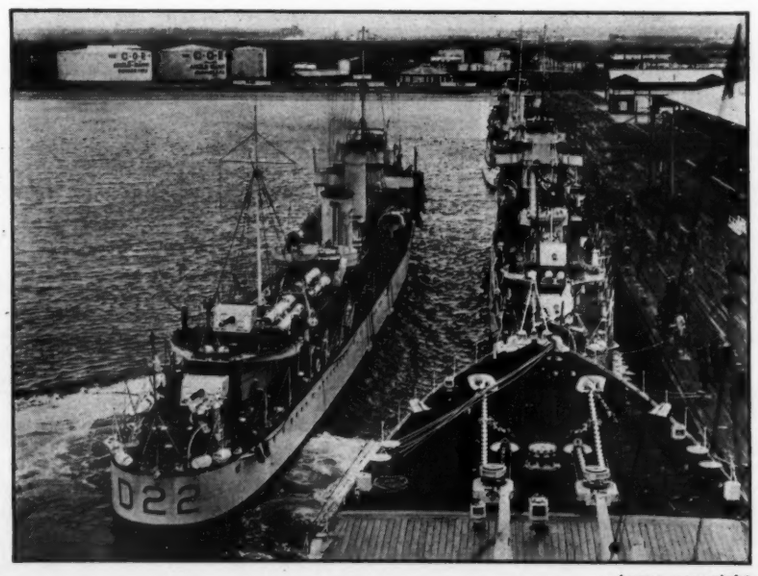
A complete classification of Mexican oil workers and suggested wage scale to apply throughout the ranks is being prepared by private companies operating in that country in a last effort to avert a threatened strike on May 27. The proposed classification and wage scale will be submitted this week to representatives of the labor syndicate for their approval or rejection.

Demands of the workers have not been altered materially since January, when they were first presented to companies operating in Mexico. Prohibitive demands, so the companies assert, are made by the labor representatives ranging up to 10 times normal pay for overtime on a holiday when temperature exceeds 104° F., if the work is performed more than 25 feet above the ground.

Discussions between representatives of private companies and workers have been in progress since January, but little has been accomplished. A truce period of 120 days to permit conferences between the opposing elements in the industry will elapse May 27, at which time a general strike is threatened unless a new basis for further discussions is reached. Discussions have been conducted with growing bitterness. As a result few decisions have been reached on the complex provisions of the collective contract.

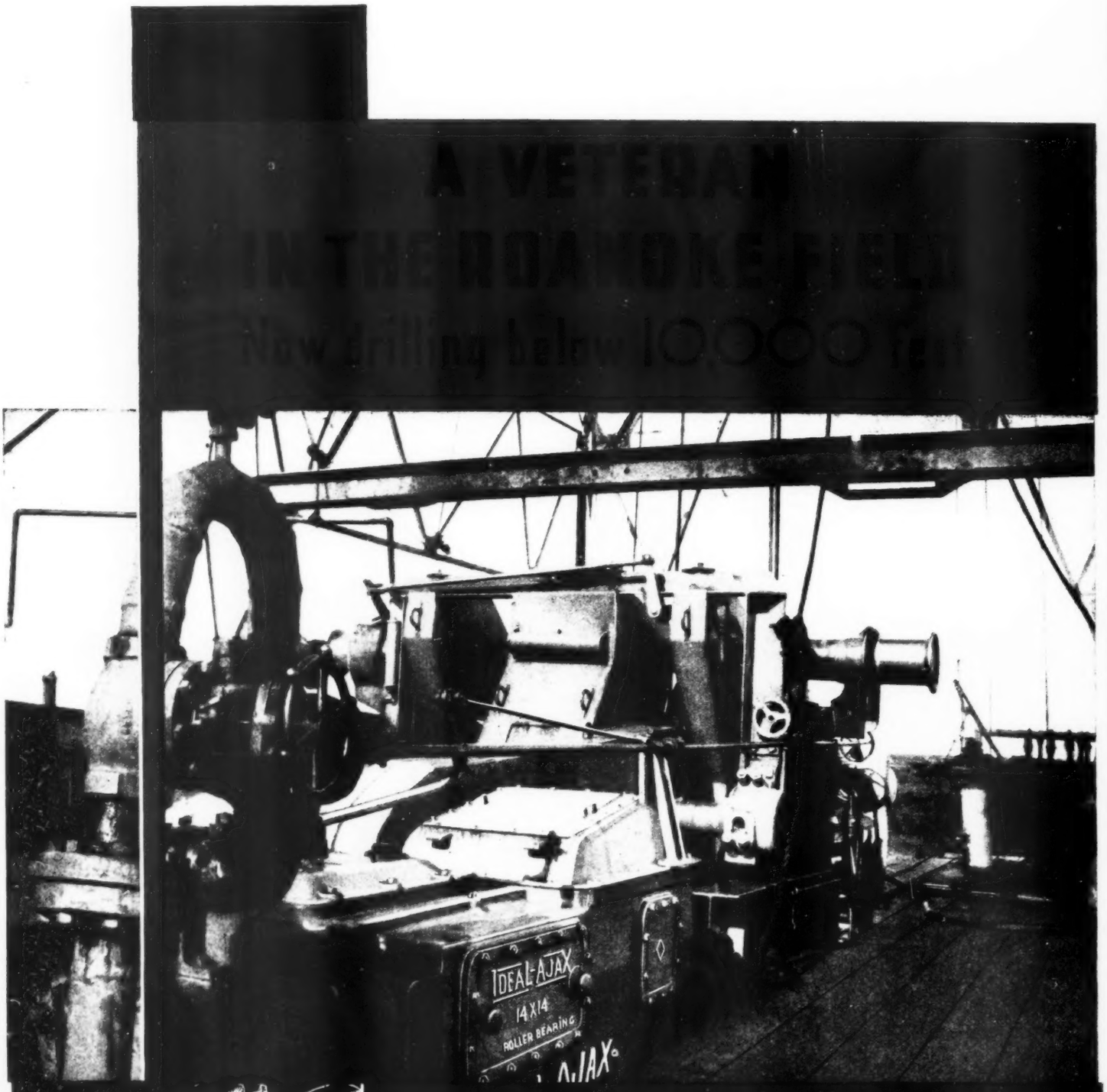
The Federal Labor Board has insisted that discussions continue with the utmost rapidity in order to avert a strike. It is believed also that President Lazaro Cardenas may intervene, despite his recent stand that the Mexican government would not interfere with legally acquired foreign oil properties and interests. President Cardenas' conciliatory policy in recent labor disputes may be applied to the present situation in order to relieve it of its critical phases. Informed quarters say the threatened strike will virtually paralyze railroad shipping, automobile traffic, and many factories which depend on petroleum for operation. The petroleum syndicate has been offered full support of the Confederation of Mexican Labor in the event a strike is called.

Eagerness of the Mexican government to keep its revenue at peak proportions, its stake in the government-operated railroads and its anxiety to maintain friendly relations with American bankers who also have a substantial interest in the country's oil business, may finally play a part in settlement of the labor dispute. Companies are known to be willing to support a contract law covering all phases of petroleum employment, provided wages and working conditions are reasonable while maintaining some profit in operations.



Argus, copyright.

Commonwealth Oil Refineries, Ltd., terminal, Port Melbourne, Australia



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Crude Stabilization and Return of Residue Gases to Wells

By E. O. BENNETT and C. R. WILLIAMS
Continental Oil Co.

Field stabilization of high-gravity crudes has proved to be an important step in the petroleum and natural gasoline industry, as well as a very definite move in conserving products that have previously been lost by evaporation.

Another important phase of production operations of vital concern to the manufacturer of natural gasoline is that of returning plant residue gas to the producing formations by the use of compression machinery during the early life of a pool.

The greatest ultimate economical yield of crude and natural gasoline can be realized only when all four parts of recovery operations—production of oil and gas, stabilization of crude, extraction of natural gasoline, and return of residue gas to the formation—are carried out simultaneously.

***N. G. A. A.*—Presented before the annual meeting, Tulsa, Oklahoma, May 19 to 21, 1937**

Proper control of all operations in a field or pool must at all times be maintained for the satisfactory handling of production on the above cycle. Continental Oil Co. is fortunate in owning a complete structure, which has been developed in an orderly and "planned-in-advance" manner, where such operations are now in effect.

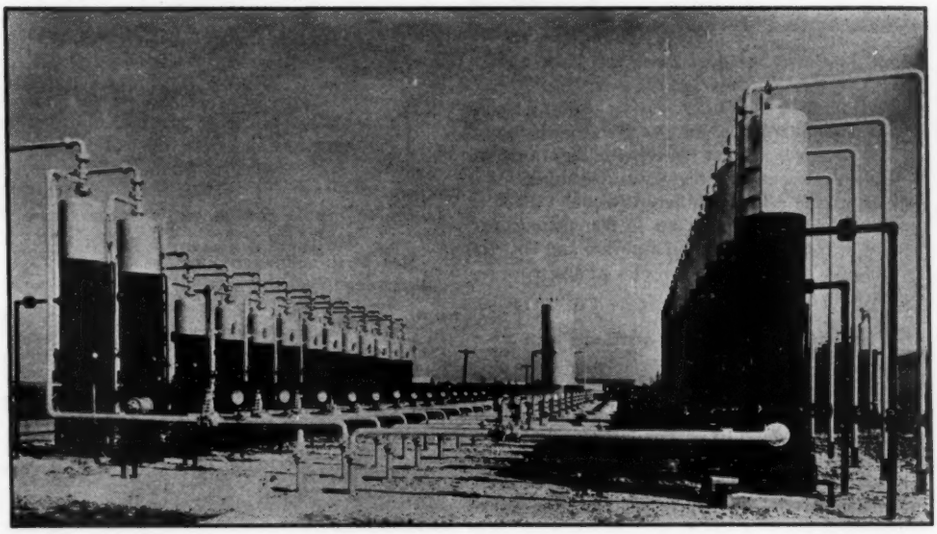

Fig. 1—Lease battery of separators at Continental Oil Co.'s stabilizer plant at Tepetate, La.

Evaporation Losses

When crude oil with an extremely high-gravity is produced by ordinary means through a lease separator and run to a lease gauge tank, the losses by evaporation from reduced pressure and increased atmospheric temperature may be as much as 20 per cent. Dissolved gases carry appreciable quantities of heavier fractions with them when leaving the liquid surface of oil in a tank, thus creating an abnormal loss.

Stabilization may be classed as controlled evaporation in which all desirable fractions are caught and saved instead of being allowed to waste to atmosphere. By stabilizing in the field, up to 50 per cent of the products normally lost by evaporation may be recovered as salable products, the exact percentage being governed by the conditions existing.

The initial formation pressure at Tepetate was 3,650 pounds per square inch. Oil produced from a formation with this pressure has much gas in solution and must be kept under pressure until it is stabilized to prevent losses. Special high-pressure meters of the positive-displacement type are used to measure the oil produced from the various leases.

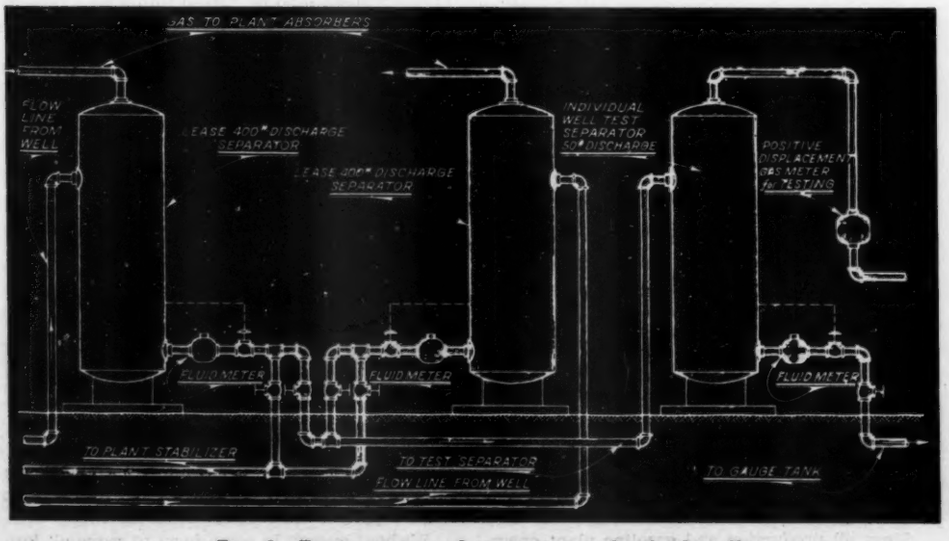

Fig. 2—Equipment used in testing individual wells

Raw Crude Metering

Oil is produced through small chokes ranging from 3/32-inch up to one-quarter inch in diameter. Lines carrying both gas and oil are taken directly from the wells to the lease separator battery, which is located at a central point inside the stabilization and gasoline plant yard. A separator and meter is provided for each lease. After the oil is metered it is taken in a common stream to the main stabilizer. Gas from the lease separators is metered separately and then flows in a common system to the absorber.

Figure 1 is a picture of the Tepetate lease separator battery and shows the oil and gas meter arrangement. All separators are so connected that any meter in the battery may be tested without taking it out of service. As shown in the schematic diagram in Figure 2, when desired, an individual oil meter can be tested by diverting a metered oil stream to the test separator, which is equipped with calibrated test meters.

Any desired volume may be passed through the test separator and meter to compare with the lease meter. While running oil through the test separator, any gas that may leave the fluid is metered and the liquid volume corrected for the liquid equivalent of the gas.

To test meters that may have been taken out of service for inspection, two 100-bbl. tanks are provided. One tank is filled with denuded oil at atmospheric pressure and equipped with a small pump to

circulate this oil through the meter being tested. Gauges of both tanks are taken to insure accuracy, and when the oil has been pumped from one tank to the other, the flow is reversed and another read-

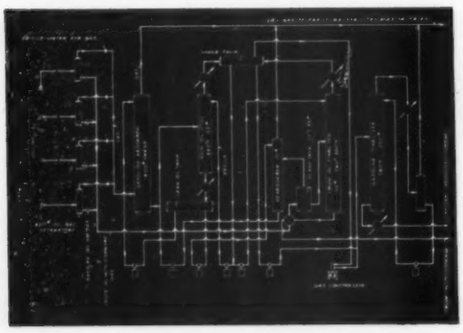

Fig. 3—Flow chart of Tepetate operations

ing taken; thus the meter may be caused to pass any desired quantity required for test purposes.

All meters in use on the oil circuits are of the positive-displacement temperature-compensating type, and read directly in barrels at 60° F. Meters working under pressures up to 500 pounds per square inch have been found accurate and entirely suitable for all purposes. The meters are more accurate than gauge tanks.

Stabilization and Absorption Plant

A careful analysis of production conditions during the early life of the Tepetate field indicated that a combined crude stabilization and natural gasoline plant would be economical and desirable. Since production was obtained through small chokes under high back-pressures and a long flow-life was apparent, a well pressure plant for working pressures up to 500 pounds per square inch was decided best. This type plant permits a single gas and oil gathering system, instead of two separ-

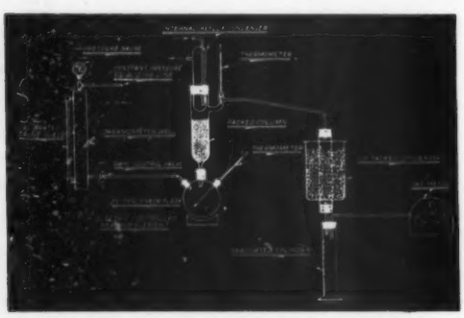

Fig. 4—Hemple distillation equipment

ate systems as generally used in conventional-type plants. The single pipe line system is made possible by placing all lease separators in a central location at the combination plant site.

A gathering system of this type saves approximately 40 per cent of the investment cost required for two separate systems and permits the use of a high-pressure absorption plant, which can be constructed for approximately one-third less cost than a conventional 40-pound absorption plant designed to handle the same quantities. A flow diagram of the Tepetate stabilization and absorber plant is shown in Figure 3.

After metering crude oil from the various 500-pound pressure lease separators located inside the plant yard, it is collected in a composite crude header and passed through exchangers where it is heated by crude leaving the stabilizer.

After the exchange, raw crude is passed to a 25-pound flash tank at about 125° F. Gas from this separation goes directly to the gas reabsorber where the gasoline it contains is removed and included in the natural gasoline from the main absorption process. Crude oil from this separation passes through additional exchangers and then through the reboiler into the crude stabilizer.

The crude stabilizer is operated at 55 pounds pressure with the conventional cold-liquid reflux. In stabilizing, operations are conducted to remove all undesirable constituents such as propane and lighter. Crude is not denuded of gasoline beyond that normally lost in natural weathering from lease gauge tanks.

The following low-temperature fractional analysis will show the type of crude handled and the stabilized crude produced:

Component in volume, per cent—	Raw crude from 530-lb. separator	Stabilized crude
Methane	0.63	None
Ethane	2.99	None
Propane	2.69	None
Butanes	2.30	2.03
Pentanes	3.62	4.30
Hexanes	7.04	7.28
Heptanes and heavier	80.73	86.39
	100.00	100.00

In the Tepetate combination absorption and stabilization plant gas from the 500-pound lease separators is metered, after which it passes through a common header to the high-pressure absorption plant for the extraction of its natural gasoline content.

Gas to the high-pressure absorber shows the following analysis:

Component—	Mol. per cent
Methane	88.97
Ethane	6.50
Propane	2.61
Butane	1.38
Pentane	0.34
Hexenes and heavier	0.20
	100.00

The gas leaving the high-pressure absorbers has the following analysis:

Component—	Mol. per cent
Methane	93.30
Ethane	3.84
Propane	2.21
Butane	0.65
Pentane	None
	100.00

A portion of this high-pressure residue is used for field operations and sales; the remainder is compressed to about 3,600 pounds for pressure-maintenance operations in field production.

Experience has proved that this type of plant can be operated with no more difficulty than a normal 40-pound absorption plant. No more personnel than would be required for an ordinary gasoline plant is needed.

Salt Deposition

Shortly after starting operations, salt deposition in the heat exchangers and preheaters caused considerable trouble. This difficulty was overcome by introducing fresh water prior to the crude's passage through the exchangers. Only a very small quantity was used to prevent salt deposition, and the overall b.s. and w. content of the crude was not altered as the water added was just sufficient to equal that flashed out of the crude.

Low gas temperature conditions existing are very desirable for absorption plant operation and result in better extraction with a given oil circulation through the absorber. The low temperatures are due to the refrigerating effect caused by expanding through small chokes at the producing wells. Casinghead pressures are as high as 2,600 pounds per square inch.

As a result of crude stabilization, in which all undesirable constituents such as propane and ethane are removed, it has been possible to blend the natural gasoline back into the crude for tanker shipments to the eastern coast with a very small weathering loss.

Since all production and gasoline plant operations are conducted at a central point, the crude pipe line pumping is also handled by the plant operators.

The stabilization and absorption plant, pipe line pump, and pressure maintenance plant are all operated by two men per shift, with two additional daytime maintenance men. Laboratory personnel is in addition to the above.

The laboratory has been of indispensable service throughout the design and operation of the combination stabilization and gasoline plant.

Prior to building the plant, laboratory analyses were required for the determination of losses and recoverable portions of these losses before the economics of stabilization could be calculated. The

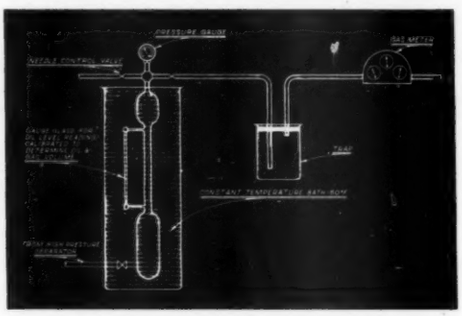

Fig. 5—Equipment arrangement to determine volume shrinkage in oil from volume of gas liberated

laboratory was also called upon to furnish the component analyses of all raw materials for process and design calculations.

With the installation of high-pressure liquid meters to measure the raw crude for royalty settlement, came the laboratory's most complex problem. Since crudes ranging in gravities from 34 to 69 degrees A.P.I. were being measured and combined, it became necessary to determine the quantities of stabilized crude, recoverable gasoline, and noncondensable waste that oil from each lease would sustain in the subsequent processing, so that the quantity of raw crude as metered from the high-pressure lease separator could be corrected to give the quantities of stabilized crude and recoverable gasoline. After considerable research the modified Hempel test as shown in Figure 4 was adopted as the simplest and most reliable method of making these determinations. . . .

Pressure Maintenance

Oil can be produced only when some form of energy causes it to be moved into a well bore by a differential pressure between the producing zone

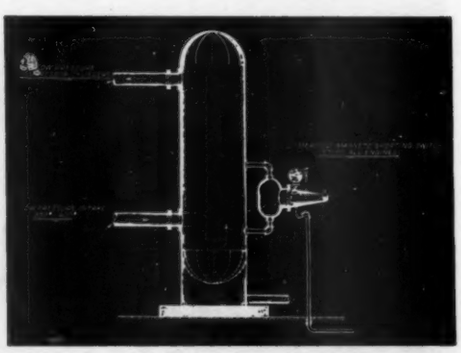

Fig. 6—Liquid-carryover cut-out

and the bore. The well may be considered as a vertical pipe line to conduct oil from the point at which it enters the bore to the surface.

Without energy in some form to move oil into

a well, the largest deposit would be valueless. Energy for lifting purposes is readily available, but it is extremely difficult to place it in the formation at remote distances from wells. The principal forms of energy associated with oil are gas and water. The gas may be in solution in the oil under formation pressures or in a gas cap immediately over the oil, or both. The water is either directly under the oil or at the edge of the structure flank. Water has no energy within itself to move oil unless it is under a hydrostatic head.

A cubic foot of gas under pressure contains energy; this energy, properly utilized, can do useful work. The amount of energy in a cubic foot of gas in a producing formation is determined by the pressure at which it is compressed. This applies to both free gas and gas in solution. The useful work done by the energy in the gas is controlled by the manner in which it is used.

Repressuring

It has been definitely proved that supposedly depleted pools have been made to produce large volumes of oil by the addition of energy in the form of gas under pressure, a process ordinarily designated as "repressuring." This process has made possible the obtaining of many additional millions of barrels of oil. Oil that is removed under a "repressuring" program has generally lost a large percentage of gas that was in solution at the initial formation pressure. Oil that has gas taken out of solution has its viscosity materially increased, and more energy is required to move it through a given distance in any particular formation. For these reasons oil under "repressuring" requires more energy for production than that produced under flush conditions.

Pressure Maintenance

If the original reservoir-pressure conditions could be maintained at all times the greatest maximum ultimate recovery would be obtained because the oil would be less viscous, and the largest possible amount of energy would be available to create maximum differential of pressures between the formation and the well bore for moving oil through the formation. Initial conditions of pressure and energy cannot be maintained without the injection of all gas produced, plus enough additional gas to occupy the space originally containing the liquid volume of oil withdrawn.

It is not always feasible or economical to return this extra volume required; but it is generally practical and economical to return the gas produced with the oil at the early life of the field, even though the pressure required is great. Early injection of gas into a producing pool is called "pressure maintenance."

The gas volume and rate of pressure decline in a pool under pressure maintenance is kept more nearly in balance with the rate of oil production. At such time as the pressure slowly declines to a value that oil can no longer be produced, it is estimated that volumes up to 60 per cent or more of the total oil in the reservoir pore space will be recovered. This is much more than can be expected under production methods generally carried on in the petroleum industry.

High-Pressure Operations

High-pressure compression is not dangerous if proper plant design and operation are carried out. The cost of high-pressure operation is comparable to that of operating with lower pressures where the same number of compression ratios are involved. In a field where wells are produced through chokes against high back pressures, a high-pressure type gasoline plant operating on well pressure is economical, and will supply residue gas at several hundred pounds pressure for the pressure maintenance plant, where it can be compressed with not more than two stages of compression up to pressures suitable for injection into practically any producing zone. Gas is handled readily with two stages of compression from 300 pounds per square inch up to 3,750 pounds per square inch.

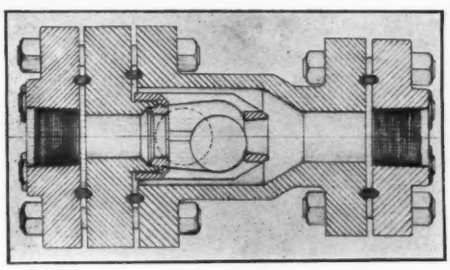

Fig. 7—High-pressure check valve

High-Pressure Plant

It has often been said that a high-pressure gasoline plant is not practical because its life is short on account of the well-pressure decline. This is true if the residue gas so produced is not returned to the producing zone. However, where pressure maintenance is carried out, and gas returned to the well, pressure decline is slow and a long life is assured. Most high-pressure fields are underlain with water, and the water slowly encroaches up into the space formerly occupied by the oil, helping to maintain the pressure for long-life operation.

In addition to making greatly increased recovery possible, pressure-maintenance plants are readily convertible into gas-lift plants and can be used for flowing large volumes of oil when the formation pressure is below that required to overcome the weight of the fluid column in the well.

High-pressure gasoline plants are objected to by some natural gasoline producers on the grounds that the recoverable content of the gas is reduced as the pressure is increased, and the return on the plant investment is lessened. This is true if a high-pressure gasoline plant is operated as a separate unit. But when a high-pressure plant is operated in conjunction with a field stabilization plant, the gasoline recovered from the absorber plant plus the usable condensable fractions from the stabilizer in reducing the crude to the equivalent that exists in lease gauge tanks is greater than that which would be produced by a given volume of gas in a conventional-type low-pressure plant. In addition, one stage of a pressure-maintenance plant is eliminated, making the overall cost favor the high-pressure installation.

The above conditions indicate that a close coordination must at all times be maintained between the production of oil and recovery of natural gasoline.

Pressure-maintenance operations also have a material effect upon well spacing. Where acreage is controlled, spacing may be made greater with maintained pressures rather than with ordinary practice, and further economies are effected.

Tepetate Pressure Maintenance Plant

The Tepetate absorber and stabilization units were designed for operation in conjunction with a pressure maintenance system to provide residue gas up to 500 pounds pressure. At the present time gas is delivered to the compressors at approximately 350 pounds. This pressure will be raised as soon as additional input wells are completed, thus permitting the handling of more gas.

The compressor plant is unique in several features and contains every known means of assuring maximum safety in operation.

The compressors used are of the new type with vertical power cylinders and horizontal compressor cylinders. They are 300-hp. units operating at 300 r.p.m. The low-pressure cylinders are 4¾ inches in diameter. The high-pressure cylinders are 3 inches in diameter and are of the single-acting plunger type. Each unit has one low-pressure and two high-pressure cylinders. The high-pressure cylinders are outside packed with metallic rings riding directly on the plungers.

Safety Features

A liquid carry-over, safety-cutout Figure 6 is used on the low-pressure intake. It consists of a vertical receiver with an outside float. Instead of operating a liquid discharge valve, the float operates a mercoid switch that short-circuits all engine magnetos, thus stopping the plant before any liquid which might accidentally carry over from the gasoline plant could reach the compressor cylinders to cause breakage. This same mercoid switch is connected so that it can be operated from several points outside the plant for complete shutdown in case of an emergency.

Intercooling is obtained through several banks of welded pipe sections wetted by inverted water sprays with well water at 65° F.

The two high-pressure intakes are tied together at the cylinder blocks; the discharge lines are also connected

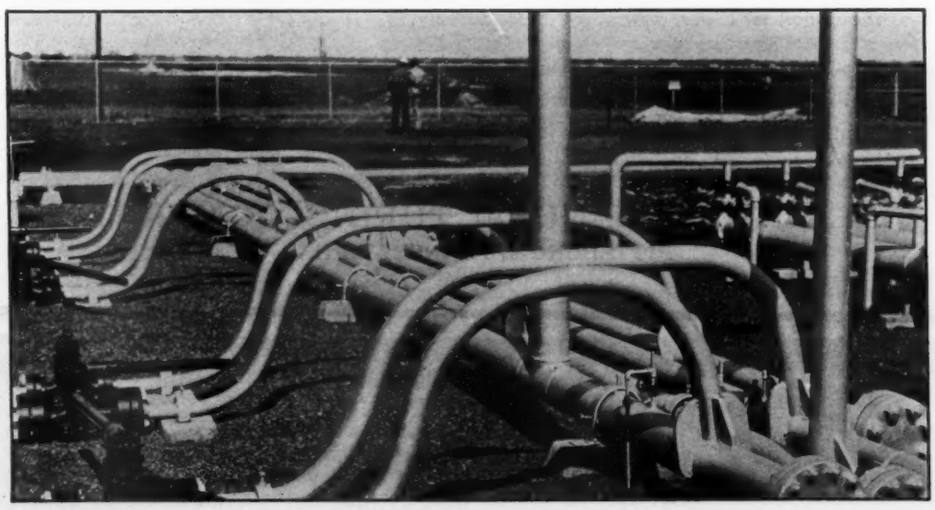

Fig. 8—Arrangement of headers in Tepetate plant

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at the cylinders. This eliminates two plug valves and two check valves.

Check Valves

Suitable high-pressure check valves were not available for operating in continuous service on high-pressure gas; and so the one shown in Figure 7 was designed. It consists of a regular oil well pump standing valve and cage operating in a horizontal position inside a housing. The flow is through the seat and cage around the ball. In case of a back-flow the ball is rolled upon the seat and the differential pressure holds it closed. This type of valve does not pound and gives a positive shut-off at all times. A patent on the design has been applied for.

A check valve is installed in each discharge line between the compressors and the headers. This is to prevent gas from flowing into the plant in case of a line break near the cylinders. Checks are also installed at the end of the header where field lines are taken off. The same type of check is used on the christmas tree at the well to shut off the well flow in case of a field line break.

The headers at the pressure plant are all above

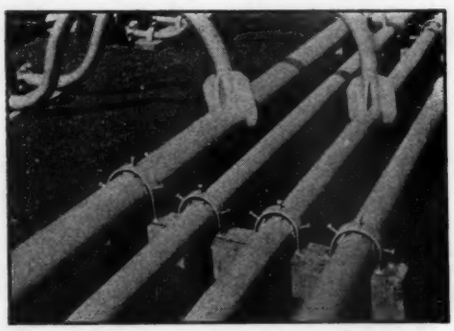


Fig. 9—Header anchors

the normal grade to prevent their corrosion and the possibility of failure from that cause. With the floor elevated above grade, no pockets for retaining gas can exist. Figure 8 shows the general arrangement of the headers. All headers are supported on concrete piers and are anchored by collars with adjustable anchor screws to allow for creeping occasioned by temperature change. After all headers reach normal operating temperature, the anchor screws are turned down to contact the pipes and all vibration is damped out. The installation of the header anchors is shown in Figure 9.

Welding

All connections at the plant are welded with the exception of the flange connections at the compressor cylinders and valves. Flanges with soft-iron ring gaskets in grooves are the only type used. They are easily made absolutely tight. All operating valves in the gas system are of the lubricated-plug type and have been found most satisfactory for this service.

All connections to headers have been reinforced with gusset plates to eliminate the possibility of breakage from temperature stresses. The discharge temperature from the compressors is approximately 275° F. Figure 10 shows the type of welding used.

Circulating Water

Good water in large volumes is available at shallow depths in the Tepetate area. A 350-foot gas lift water well was designed and put into service. It is capable of producing 105,000 bbls. per day. The water and gas from the well are carried into a 7 by 22-foot separator. The gas is then used for engine fuel, the pressure being reduced by lifting the water instead of by the customary pressure-reducing valve.

Water controlled by a float valve is passed through two condensers where it condenses steam from a 300-kw. and a 200-kw. turbo alternator. The alternators supply electrical energy for the stabilization and absorber plant. In condensing the steam, temperature is raised from 65° to 100°, which is desirable for engine jackets. Part of the cold stream is taken to the sprays for gas intercooling and lubricating oil coolers. The condensate from the turbines is returned to the boiler feed pumps at 212° and eliminates approximately 85 per cent of the raw water make-up and treatment formerly required. All boiler priming has been eliminated.

This type of cooling system is simple, requires no pumping machinery, and where ample water is available, it is most economical to use. Temperatures are controlled by flow rates in various parts of the system.

Each engine is equipped with a low-pressure mercoid cutout on both water and lubricating oil circuits. The failure of either will shut down the engine and prevent damage. Vapor-proof magnetos are used in the engine ignition system.

The engines are placed back-to-back with compressors towards the outside walls, which arrangement makes a very compact layout. The only lines in the center of the building are air-starting, fuel, and water. Exhaust lines are overhead, and mufflers are above the roof. This design gives the least back-pressure on the engine exhaust. By insulating the jacket around the exhaust lines, a very cool operating temperature in the engine room is maintained.

Field Lines

Field lines to input wells are heavily anchored at both the header and well ends. To provide for expansion on account of extreme temperature changes from idle working conditions, expansion loops in vertical planes are installed. These loops are approximately 9 feet in diameter and have 36-inch openings at the bottom. They are anchored laterally by stay-rods and deadmen.

Freezing and Formation of Hydrates

When gas was first injected for test purposes into a well at Tepetate considerable difficulty was experienced with freezing at the well-head connections. Gas left the compressor at 275° F. and the line froze solid after about 10 hours' operation because of the formation of hydrates, crystalline compounds made up of water vapor and hydrocarbon gases.

Some very comprehensive work on the formation of hydrates in connection with natural gas transmission lines has been done by E. G. Hammerschmidt (Ind. & Engr. Chem., Aug. 1934) on pressures up to 800 pounds per square inch. The empirical formula,

$$T\ °F. = 8.9\ (P_{abs.})^{0.385}$$

developed by Hammerschmidt was extended up to 4,000 pounds pressure, and the temperature at

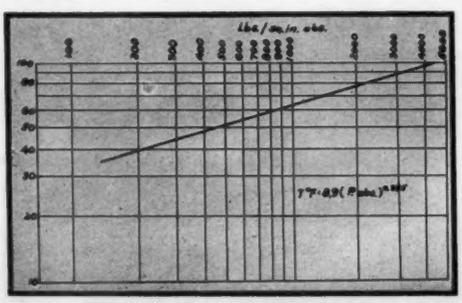


Chart showing temperatures at which hydrates will freeze. (From data by E. G. Hammerschmidt in Ind. & Engr. Chem., Aug. 1934)

which hydrates formed was found to be close to the temperature existing in actual practice. A logarithmic curve showing the pressure and temperature relations is illustrated here. The fact that the composition of the gas and amount of water vapor present differed from that in the work of Mr. Hammerschmidt had a definite effect upon results obtained. The above formula, however, is considered accurate for practical purposes with ordinary residue gases used in repressuring and pressure-maintenance work.

To continue operations, it was necessary to completely dehydrate the gas or insulate the line sufficiently to keep the temperature above the critical point for the formation of hydrates until the gas reached a depth in the well where subsurface temperatures was high enough to maintain gaseous conditions.

Dehydration of large volumes of gas is very expensive. Consequently, the freezing was overcome by insulating the line from the compressor to the well and works very satisfactorily. Upon completing a large plant and using a larger line, it

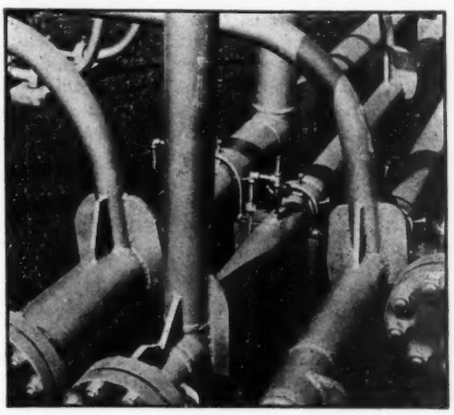


Fig. 10—Method of welding to strengthen connections

was found that sufficient heat was carried by the gas to prevent the temperature dropping to the critical value, without the necessity of insulation. No expansion of the gas is necessary for the formation of the hydrates as it takes place with temperature reductions by radiation.

Hydrates appear in the form of snow and gradually build up inside turns, in valves, or at any irregularities in the system, packing in the form of opaque ice. The formation appears more rapidly under high pressures for a given volume of gas, on account of increased density and lower velocity of flow.

Working Pressures and Flow Formulae

Normal working pressures at the Tepetate installation are from 3,500 to 3,750 pounds per square inch. This is believed to be the highest working pressure ever used in returning gas to producing formations for oil-recovery purposes. Under this condition a cubic foot of gas weighs approximately 16 pounds, or about one-fourth that of water, and velocities are low. When handling 7,000,000 cubic feet per day at 3,500 pounds per square inch, a line with an inside diameter of 3.286 inches, the velocity is about 6.5 feet per second.

In attempting to design lines for carrying gas from the pressure plant to input wells, it was found that the gas flow formulae ordinarily used were not accurate for pressures in excess of 3,000 pounds per square inch. Liquid flow formulae with correction factors for flowing density appear to give results in keeping with actual practice. Data are being obtained in an attempt to develop empirical formulae that can be used for extreme-pressure line design.

Complete Analyses of Natural Gas

By
W. F. FULTON
Chief Chemist, United
Gas Public Service Co.

The precision analysis of natural gas is not necessary to the average plant operator or gasoline manufacturer, however, to the gas company who transports gas for thousands of miles and distributes it to thousands of domestic and industrial consumers, it is necessary to know accurately all of the constituents in the gas.

As an example of this: A woman in a large town, whom the company supplies with natural gas, claimed that the gas contained carbon monoxide, and a small leak in her bedroom caused her health to be permanently injured. She had the gas analyzed by the head of the chemistry department of a large university, and his analysis

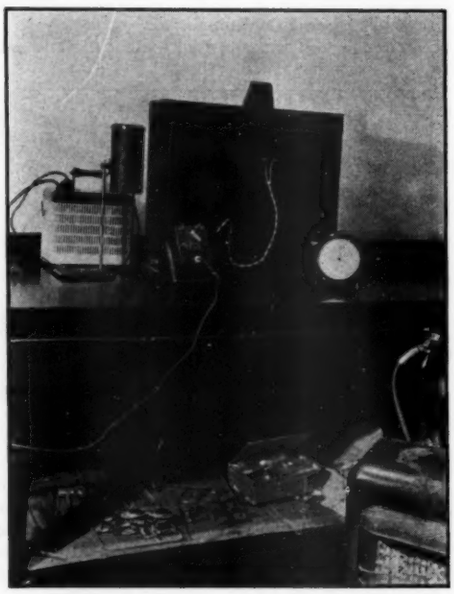
***N. G. A. A.*—Presented before the annual meeting, Tulsa, Oklahoma, May 19 to 21, 1937**

reported carbon monoxide present in the gas. Also a report from a large commercial laboratory claimed the gas contained carbon monoxide. Of course, we knew that the gas contained no carbon monoxide, and in order to prove the absence of it we had to construct an apparatus similar to that used by the Bureau of Mines, the iodine pentoxide method.[1] We found that even this method showed traces of carbon monoxide, so we ran a blank test before and after each test which, when subtracted from the results of the test, gave the correct results. In all cases natural gas did not contain carbon monoxide.

We determine total sulfur in gas in order to know the amount of calodrant the gas contains. We use the referee method,[2] which is very accurate. We have had many people claim that the odorant was poisonous and affected their health, and in order to determine the toxic properties we conducted the following experiment: Three white rats were placed in a chamber with a glass door, and air saturated or containing different amounts of odorant was circulated through the chamber. At the end of an hour when we reached 300 gallons per 1,000,000 cubic feet, they were acting dizzy or drunk. However, they recovered in a short time after removal from the chamber with no permanent ill affects. In as much as we use only 2 gallons per 1,000,000 cubic feet, the gas itself would have caused suffocation before the odorant could have any effect whatever.

For the determination of hydrogen sulfide we use the regular cadmium chloride method for low percentages (under 30 grains per 100 cubic feet). And a tutweiler for larger percentages. For carbon dioxide the regular absorption in sodium hydroxide is used.

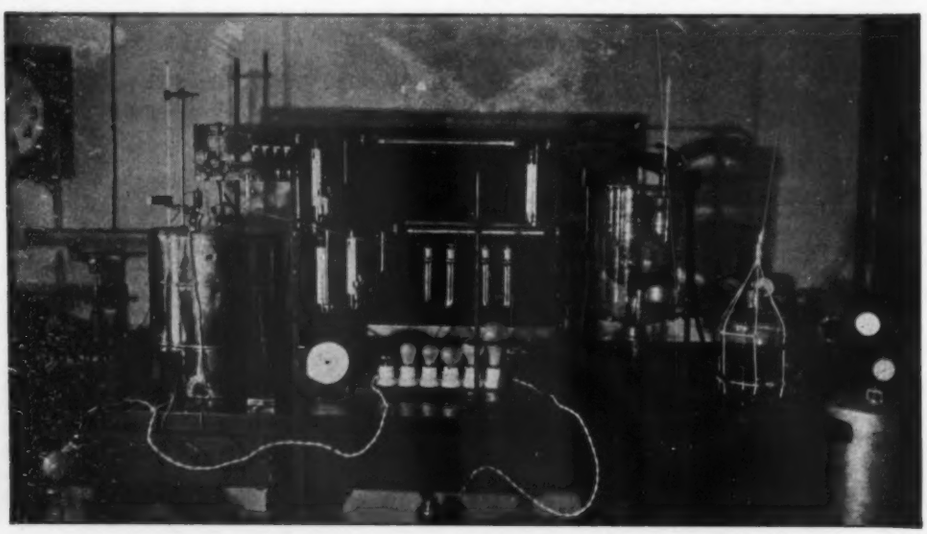
Next we come to oxygen. There has been a large amount of argument about the presence of oxygen in gas. The ordinary methods of determination by absorption always resulted in a report of .1 to .5 per cent, depending on the nature of the gas. From a geologic standpoint gas could not contain oxygen because it has remained in contact with salt water and sands, which contain iron in the ferrous state. This point I cannot argue, however, we have constructed an apparatus which consists of two glass tubes containing acetone. To one tube is attached a burette for measuring the gas sample and pushing it into the reaction tube with mercury. The other tube is a blank and has been pumped down with a vacuum pump, so that it contains acetone liquid vapors and no other gases or air. These tubes are attached and placed in an electrically heated water bath where they are allowed approximately 10 minutes to come to temperature equilibrium at the boiling point of acetone. Then the rays from an ultra-violet lamp (mercury arc) are filtered through a red-purple corex filter No. 986 and then on to the vapors in the two tubes. The tubes are shielded in a black



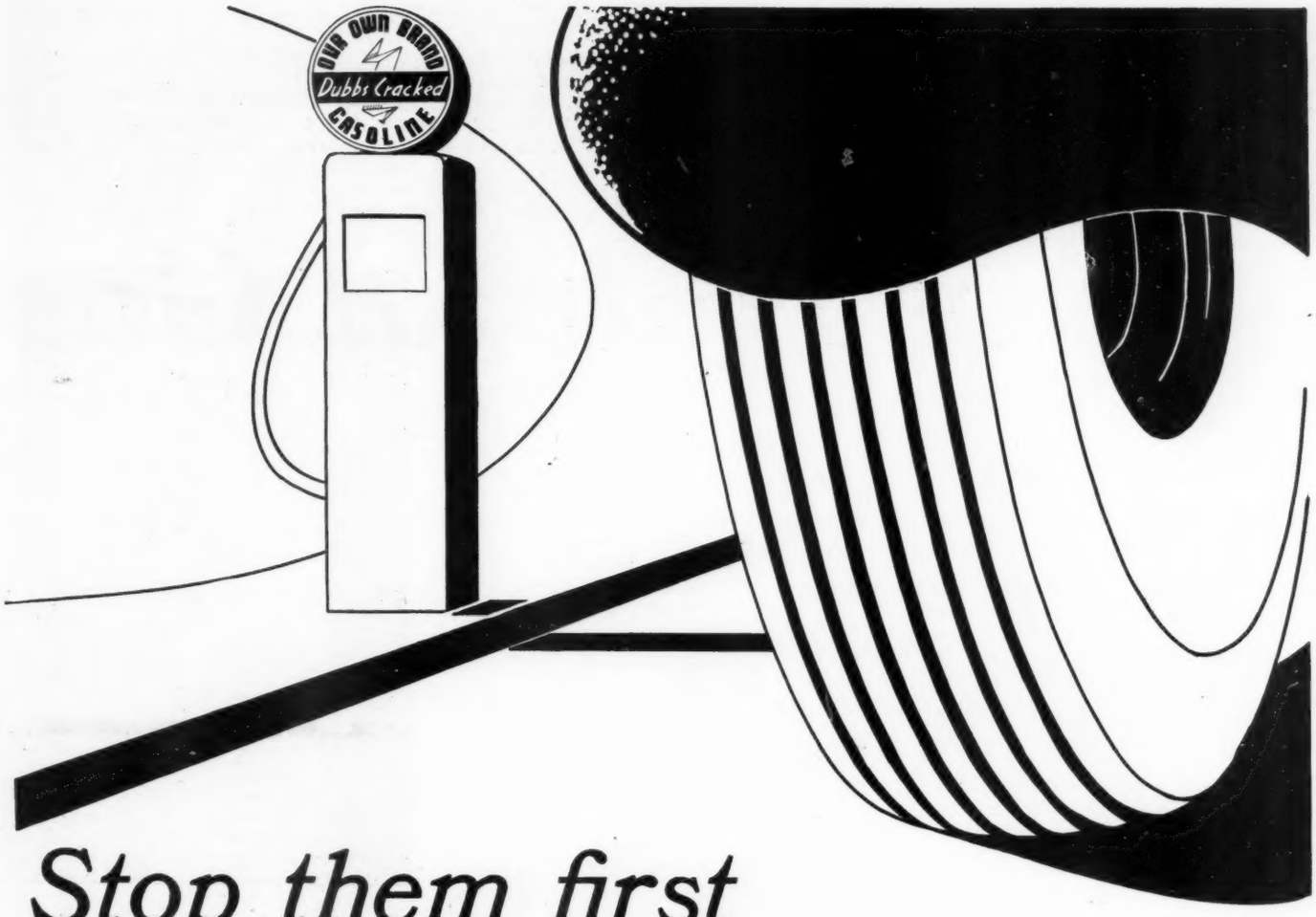
Apparatus for determining oxygen

box. The top of the tubes are visible through the top in a mirror set at an angle so that the tubes appear as two green discs about three-quarters of an inch in diameter. In operating the apparatus the reaction tube is evacuated, then the sample of gas is drawn in with the mercury leveling bulb into the burette and measured, then pushed into the reaction tube. The tubes are brought to temperature (135° F.), then the lamp is lighted and a stop clock started. The time, in minutes, that is required to change the reaction tube from blue to green to match the blank is noted. By previous calibration we know that it takes one minute to change from blue to green for every one hundredth of 1 per cent oxygen present. A sample containing .1 per cent would require 10 minutes to change to green. I might add, that up to the present time, we have not found a trace of oxygen in gas from high-pressure wells or lines. We found one sample which contained oxygen but was from a line operating at a slight vacuum, and the oxygen was no doubt due to leakage into the lines.

Helium is determined by the absorption of all gases present in the gas with activated coconut shell charcoal. This apparatus is mounted at the side of the fractionating column. It is first evacuated with the column pump while the carbon is heated with an electric heater. Then the apparatus is further evacuated by means of the mercury pump, which is a part of it. The gas is drawn into



Gas measuring devices as part of calorimeter assembly



Stop them first

YOU have to bring them up to the pump before you can sell them gasoline

Your pumps can't talk but they can tell a story in sign language that will catch the motorist's eye and bring him in

He'll try your Dubbscracked gasoline out of curiosity—he'll come back out of satisfaction —and keep coming back You've made a steady customer

Make every pump tell the story in sign language, it's YOUR Dubbscracked gasoline

It pays

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

the apparatus and measured, then passed to the bulb containing the activated coconut shell charcoal, which is immersed in liquid air. Here all gases except helium are absorbed, then the remaining helium is measured. A detailed description of this apparatus and its operation can be found in the analytical edition of Industrial and Engineering Chemistry.[3]

The methane and heavier hydrocarbons are determined in the usual manner with a fractionating column. The methane and nitrogen fraction is used to determine the nitrogen content with an interferometer.

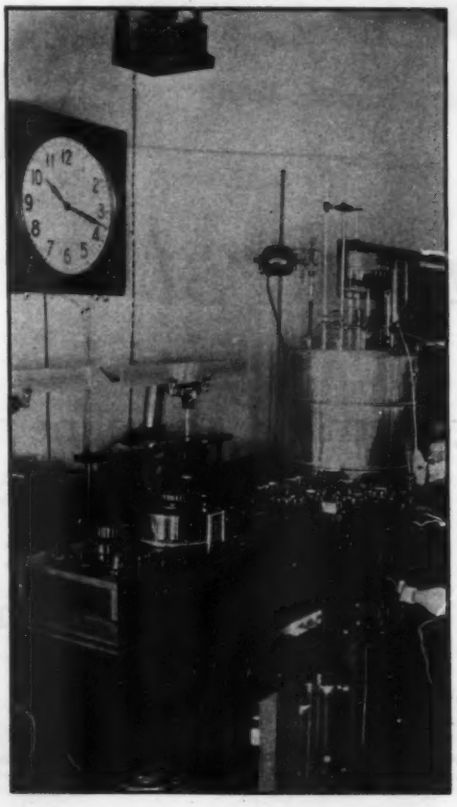
The interferometer was calibrated with mixtures of nitrogen and carbon dioxide because we could not obtain methane 100 per cent pure to use as a reference gas. We started with air and compared it with mixtures of carbon dioxide mixed with nitrogen from commercial cylinders. In this way we determined the refractive index of carbon dioxide in the cylinder, and found it to be 442.83. This showed that the refractive index of carbon dioxide which we used was almost the same as that of methane. We could use it in the place of methane, and by knowing accurately the index for the carbon dioxide (442.83) and refractive indices being additive we could correct to the value for pure methane. By placing carbon dioxide in the right-hand chamber and a mixture of methane and nitrogen in the left-hand chamber and adjusting the top series of interference bands, which are red, green and black, until they matched, and by use of the micrometer screw, and reading the scale, we could from the calibration chart read the per cent of nitrogen and methane to .01 per cent.

The next determination of the most important property of gas to a gas company is its heating value[4], in fact that is what we are selling, B.t.u's. In most laboratories they use the flow calorimeter for this determination, and we have found this type of instrument is satisfactory for routine test if properly checked and calibrated. In order to check our recording calorimeters, which are placed on lines feeding large industrial customers, we constructed a precision calorimeter similar to the one used by the Bureau of Standards in determining the heat of combustion of hydrogen. We followed all of the precautions mentioned by Walter P. White in modern calorimetery which are essential for precision work. The method consisted of burning a known volume of gas with oxygen in a pyrex burning cell placed in a known quantity of water in a calorimeter can surrounded by a shield and an outer jacket of water of predetermined temperature. The temperature rise of the water was measured by a resistance thermometer, and the water in the calorimeter and jacket was stirred by a constant speed motor. The glass cell burning chamber was surrounded by the calibrating heater which was used to heat the mass of water, N, degrees while measuring the voltage and amperage applied. And in this manner the amount of heat necessary to raise the mass of water in the calorimeter 1° C. was determined in international joules. The voltage and current being measured by the sensitive potentiometric system. The current was timed by an electric clock with electric contact to operate a solenoid switch through a relay for accurate determination of the time of heating in seconds.

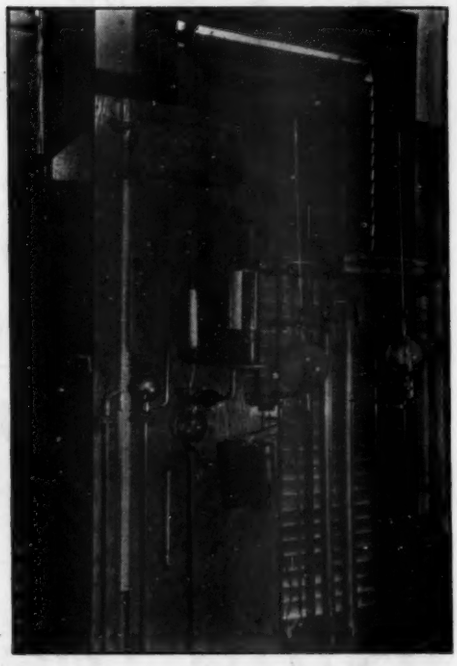
The assembly of the apparatus consists of a pyrex measuring bulb with the top and bottom necks graduated. The capacity was 2,200 cc. The gas passes through the top of measuring bulb to a drying tube containing ascarite to remove water vapor and carbon dioxide, then through a flow meter and capillary coil to be assured that the gas is at room temperature. The oxygen was passed through a similar train being fed direct from a cylinder. The reaction coil where the gas is burned is constructed of pyrex glass and is a bulb approximately 8 inches long and 1¼ inches in diameter, with 9 feet of half-inch pyrex tubing coiled around it. This is connected at the bottom, and through this coil the products of combustion pass out of the calorimeter. The gas enters through a tube at the top of the bulb and extends into it approximately 2½ inches and has a platinum tip. The oxygen enters at top and to one side of the gas tip. The cell is flushed out with oxygen and the rate adjusted, then an electric spark is passed across the tip and the gas started. The spark is then stopped. This requires approximately two or three seconds, this time being determined with a stop clock attached to the spark switch. The calorimeter can will hold 5,000 cc. of water up to within 1 cm. of the top. This can is surrounded by a shield of nickel plated copper, and is 1 cm. from the can. The can and shield are surrounded on sides and bottom by a 3-inch water jacket equipped with stirrers with constant speed. The water jacket temperature is maintained to within .01° C. with an electric heater controlled by a lamp bank. The temperature rise is measured with an electric platinum resistance thermometer. (This thermometer is certified by Bureau of Standards and has the following constants: R. = 25.5 ohms. Increase from O:C to 100° C. = 9.927 international ohms D = 1.50.) The resistance of the thermometers was read on a muller bridge attached to sensitive galvanometer. A change of .0001 ohms caused a 4 MM. deflection on the scale, so that 1 MM. was equal to .00025° C. The calibrating heater was made by drawing a copper tube over a silk insulated No. 36 B.S. gauge constantan wire. In order to visualize the size of the copper tubing, the outside diameter is about the same as No. 8 thread. The leads were enamel covered 24- and 28-gauge wires. The voltage and amperage were measured with a type K potentiometer and galvanometer. The current was derived from 16 storage batteries in series. The current was started and stopped by a V-type switch operated by a solenoid connected to an electric clock. The calorimeter was calibrated by allowing the current to flow through the heater for 900 seconds and taking voltage and ampere readings each minute. The amount of heat required to raise the mass of water in the calorimeter 1° C. is determined. This we call the electric equivalent which is 21,585.71 international joules at 25° C. The mass of water in the calorimeter is measured with certified flask and converted to grams. Both is calibrating and in running a sample of gas all necessary corrections are made and the results calculated in international joules and then converted to B.t.u. The accuracy of the calorimeter is ± .25 B.t.u. We used various B.t.u. gases with the following results:

655.53	829.95	994.27	1023.49
655.15	830.50	994.41	1023.05
655.34±.19	830.23±.28	994.34±.07	1023.27±.22

Interferometer apparatus



Calorimeter instruments for determining heating values



Helium absorption apparatus

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3. Analytical edition Industrial and Engineering Chemistry, May 15, 1934.
4. Refiner, August, 1933.

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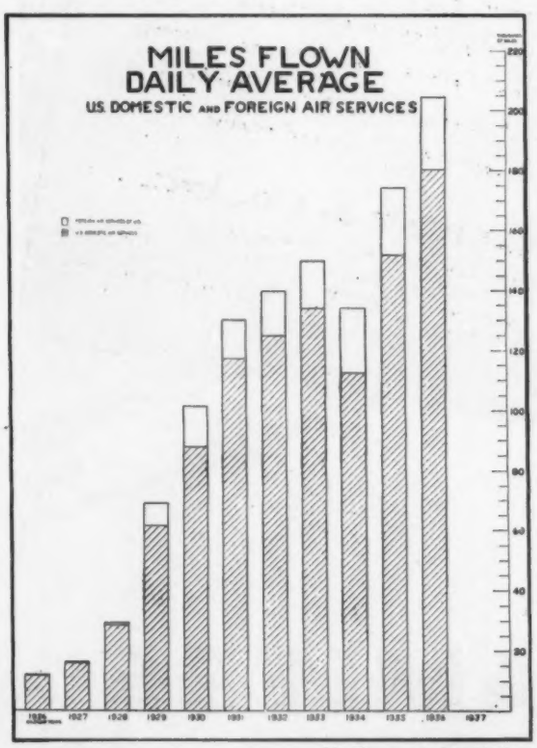
1937-1927—Lindbergh's airplanes which span 10 years of rapid growth in aviation

Colonel Lindbergh's trans-Atlantic flight 10 years ago May 21 pointed the way to commercial aviation potentialities. The petroleum industry is currently aiding in the still greater advancement in use and development of heavier-than-air craft.

Aviation had made such rapid strides in commercial transportation and become so important in national defense that petroleum refiners are constantly striving to produce improved fuels. Furthermore, the high-compression, heavy-duty airplane engines reveal many elements of performance which can be applied directly or indirectly to automobile engine design and automobile fuel production. Petroleum technologists have been producing for two or three years 100-octane gasoline, confined almost exclusively so far to U. S. Army and Navy consumption. It is significant, however, that increasing quantities of 92-octane motor fuel are being purchased by commercial airlines, that nearly 80 per cent of all aviation gasoline now consumed is 87-octane or better. Modern aviation fuel available at several hundred airports is a long jump from the gasoline with which Colonel Lindbergh's tanks in the Spirit of St. Louis were filled 10 years ago. Under the modern methods of rating motor fuel, the gasoline used by Colonel Lindbergh would rank about 69-octane, or roughly equivalent to "regular" grades now burned in the family automobile engine.



Air Transport Association.

Lindbergh's Wright Whirlwind J-5 motor which carried the Spirit of St. Louis across the Atlantic to France was of nine-cylinder, radial design rated at 220 hp. Cylinders had a bore of 4.5 inches and stroke of 5.5 inches. Piston displacement was 790 cubic inches. Weight of the engine was approximately 2.27 pounds per horsepower, and it developed 1 hp. for every 3.59 cubic inches of displacement.

The modern Wright Cyclone, also a nine-cylinder engine, has rating of 1,100 hp. for take-off, weighs 1.15 pounds per horsepower and develops 1 hp. for every 1.65 cubic inches of displacement. Comparative figures between the Lindbergh motor of 10 years ago and the modern power unit emphasize the trend in engine construction toward less weight per unit of horsepower which has been possible largely through refinery development of more efficient gasoline fuel and lubricating oil and by improved cooling in engine design.

In 10 years of civil aeronautics in the United States, the industry's total number of firms more than doubled. Airplanes in operation have trebled in number, miles flown by miscellaneous commercial and private flyers have increased four times, annual air-mail poundage is 20 times greater and the number of passengers carried by the scheduled air lines is now 180 times the total of 1926.

Since aviation has advanced into the ranks of big business, plane construction trends point to larger ships capable of handling greater pay loads with a relatively slight increase in operating expense. Consequently, luxury airliners capable of accommodating approximately 80 passengers are on the construction program of at least one major operator for possible use in trans-Atlantic service. Trans-Pacific air express, mail and passenger service is already a reality, launched over a year ago. Only recently the trans-Pacific service was extended to include passengers, but regularly scheduled flights are now available to travelers.

Broadened Consumption

The real future for broadened consumption of the iso-octane and iso-propyl ether aviation fuel blends rests fundamentally in nonstop transcontinental schedules, long over-water flights or exceptionally fast inter-city trips for which premium rates may be properly extracted from the public. These possible channels of consumption are in addition to requirements of the Army and Navy, which are constantly increasing their purchaess of 100-octane motor fuel.

Major General Westover, chief of the Army Air Corps, has recommended that 10 per cent of the motor fuel purchased for next year's consumption be 100-octane gasoline. In his recommendation Major Westover predicted the Army soon would go universally to the use of 100-octane fuel and that commercial lines also would adopt it in their scheduled operations.

High altitude operations by both civil and army aircraft probably would soon become commonplace for both safety and speed. High-quality gasoline has contributed to past and current experiments with substratosphere operation of airplanes. Howard Hughes' record-breaking speed flights across the continent have demonstrated the possibilities in substratosphere operation of commercial aircraft. Hughes' flights have been made possible by use of 100-octane gasoline in his supercharged Pratt & Whitney motor.

The Army Air Corps is now engaged in a series of experiments with a Lockheed airplane designed to fly at 12,000 feet. The Army's high-altitude experimental plane is stressed from within to withstand pressure differential of 15 pounds per square inch. Experiments with the substratosphere craft will form the basis for a fleet of high-flying bomb-

ing in Importance of Oil Products

By H. STANLEY NORMAN

THE SIZE OF THE UNITED STATES AS MEASURED IN HOURS OF TRAVEL DURING THE PERIOD OF THE STAGE COACH
THE SIZE OF THE U.S. REDUCED BY RAILROAD TRANSPORTATION
THE SIZE OF THE U.S. REDUCED BY AIRPLANE TRANSPORTATION

Courtesy Postoffice Department.

Why aviation will continue to expand

ers which the Army is considering as additional equipment.

The rate at which air passenger traffic is increasing is reflected in the Bureau of Air Commerce statistics. The airline passenger total in 1926 was 5,782, in 1935 it was 860,761, and in 1936, 1,020,931. More significant is that until 1935 the annual air-line passenger totals ranged from about 500,000 downward with big increases in 1935 and 1936.

While America continues far ahead of Europe in commercial air transportation, progress in foreign countries is gradually narrowing this country's advantage.

On European lines alone, a total distance of 12,009,000 kilometers was flown in 1936 on combined passenger and freight services and another 2,879,000 kilometers in the transportation of mail and freight by German Lufthansa. The total mileage of 14,888,000 kilometers operated by the German company in 1936 represents an increase of 16.4 per cent over 1935. The number of passengers increased by 41 per cent to 231,900 and the volume of freight by 33.1 per cent to 3 3,000 kilograms. Even more spectacular was the line's increase in air mail which at 2,409,000 kilograms was 83.9 per cent larger than in 1935.

Another important European air-line operator is the Dutch K.L.M., which carried 114,325 passengers in 1936, an increase of 14.1 per cent. Freight traffic over the K.L.M. system amounted to 1,471,000 kilograms in 1936, a rise of 38.5 per cent.

Progress by the German Lufthansa and Dutch K.L.M. systems was outstanding in European operations, but most other countries also shared in the general gain in aviation. Exceptions include reduced freight traffic by air in France and curtailment of both passenger and freight transportation by air in Switzerland.

While comparable figures are not available, it is probable gasoline and oil consumption by the aviation industry in foreign countries is at least equal to that required in American operations. Any deficiency in civil aviation consumption is probably due to greater military requirements in European countries.

Lubricating Requirements

Proper lubrication of modern aircraft power units requires oil of high viscosity, involving special cooling or heating arrangements to cope with the varied operating temperatures encountered in flight. The range of operating conditions is much the same in civil and military aircraft, although in case of the former service less attention can be given to cold weather since most commercial planes are housed within heated hangers.

At the normal maximum oil inlet temperature of 185° F., the standard grade of oil has a Saybolt viscosity of 185 seconds as compared with 70 seconds for S.A.E. No. 20 automobile engine oil. Even the standard grade of winter oil used by the Air Corps has a viscosity of about 350,000 Saybolt seconds at 0° F., whereas the S.A.E. No. 20 oil has a Saybolt viscosity of about 21,000 seconds at the same temperature.

The problem of adequate lubrication for airplane engines is much more complex than in the case of automobiles. The supply of lubricating oil to the aviation engine must be adequate and constant for long periods of operation at full power or at cruising power, in level flight or climb and

(Continued on Page 73)

PETROLEUM PRODUCT CONSUMPTION OF AVIATION INDUSTRY IN THE UNITED STATES

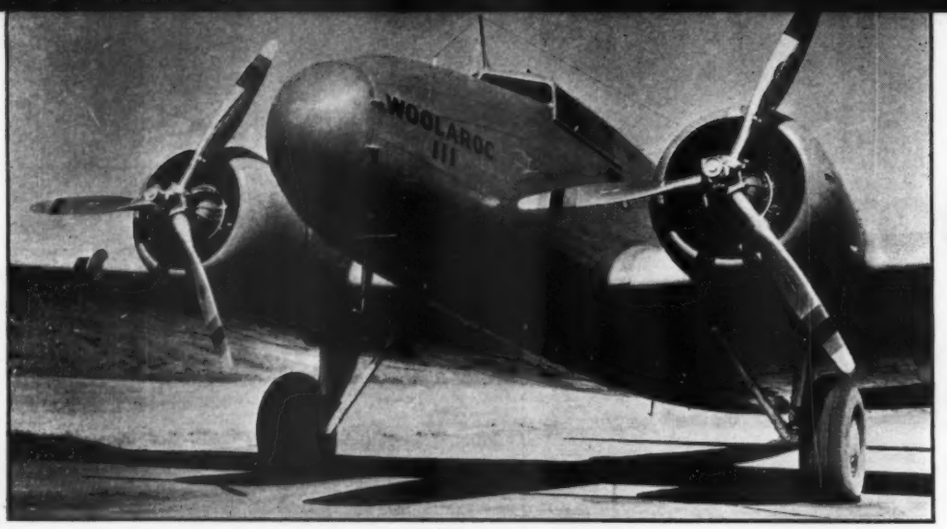
(Data in gallons)

	Gasoline	Motor oil
1936	81,024,315	2,303,415
1935	73,684,280	2,292,225
1934	58,414,256	2,158,288
1933	57,023,426	1,999,459
1932	54,058,431	1,569,528
1931	30,815,391	1,178,669
1930	28,530,808	1,153,519
1929	20,520,617	1,026,030
1928	9,899,392	494,970
1927	5,056,449	252,823

1937 motor fuel consumption estimated in excess of 100,000,000 gallons.

Consumers of petroleum products

American Airlines.



Executive plane of Phillips Petroleum Co. Boeing bimotor

Phillips' to Opera

By W. F. CONRADT
Aviation Division, Phillips Petroleum Co.

It is 11 years since the Phillips Petroleum Co. first acquired wings with the purchase of a small Travel Air biplane in 1926, and since then it has owned and operated 22 airplanes, six of which are in service at the present time.

If it were possible for one airplane to sustain flight for the number of hours that Phillips ships have been in the air during that period, it would have to remain aloft every hour of the day and every day of the year for more than one and one-half years, and on that flight it could circle the earth at the equator 70 times. For a log, accurately kept of each trip made by company aircraft, reveals the fact that these airplanes in the past 11 years have been in flight 13,500 hours and have flown a distance of 1,750,000 miles. Last year alone Phillips airplanes flew a quarter of a million miles, and with the recent addition of more modern and speedier equipment, even that record is likely to be eclipsed in 1937.

Al Buchanan, drilling contractor, his Waco plane and W. M. Cason, pilot

Finely Equipped

The present Phillips fleet, ranging from a small two-place monoplane to a Boeing bimotor with accommodations for 10 passengers, and including a Travel Air cabin ship, Lockheed Vega and two twin-engined Lockheed 12's, is probably the most modern and finely equipped of any privately owned aircraft fleet in this country.

At its head is the Boeing, which is reserved for executive use. Its two 550-hp. geared engines give it a cruising speed of 190 miles per hour and a top speed of well over 200, and extra gasoline tanks make possible a cruising range of 1,000 miles. The special cabin incorporates every passenger convenience, including the latest sound-proofing, and a novel two-way radio installation, recently completed. This feature provides communication for the ship's passengers while in flight to any point on the map through combined radio and telephone facilities. Operating on a special ultra-high frequency, this new equipment makes it possible for anyone in the airplane to call the company's ground station at Bartlesville, Okla., and the attendant can then plug the radio receiver into the telephone circuit. The ground radio transmitter is connected also to the company's switchboard, and in a few moments the telephone operator will answer the airplane and make any connection desired, either local or to any place in the United States. Thus, company executives experience no feeling of isolation when flying about in this airplane since they are never any farther away from their offices at Bartlesville than the telephone in the ship's luxurious cabin.

With a cruising speed in excess of 200 miles per hour, the Lockheed bimotor—the Phillips company operates two—is one of the fastest commercial ships in existence. These trim, all-metal airplanes are powered with two 450-hp. engines, have two rudders, retractible landing gear, and seat six passengers. The other Lockheed is a single-motored Vega, which cruises at 150 miles per hour. All three airplanes have two-way radio and are completely equipped for night operations.

The Travel Air, a four-place cabin ship, is assigned to a department head whose duties require a great deal of traveling. A company-trained pilot, he flies the ship himself at a cost comparable to that of operating an automobile, and the time he saves enables him to handle much more work than would be possible without its use.

F. W. Martin, drilling contractor of Shreveport, La., with "The Driller II," used in his operations

Swift and Comfortable

Operating as it does over so vast an area, the Phillips Petroleum Co. has found air transportation the only solution to many of the problems which supervision over such a large territory involves. Especially in the Southwest, where distances are great and rail facilities inadequate, has the airplane made itself indispensable by providing a swift and comfortable means of travel for executives who find it necessary "to get there in a hurry." From Bartlesville to Amarillo, Tex., for example, is about a 20-hour trip by rail, but an airplane can fly the distance easily in two hours. Likewise it requires a full day's journey by train to the oil fields of East Texas, whereas it is less than two hours from Bartlesville by air. Both New York and California are brought within eight hours' distance of the busy executive at the Bartlesville office, and aircraft can transport him to any one of the company's marketing divisions throughout the country in half that time.

Widely scattered appointments following closely upon one another are easily kept, since a trip of 1,000 miles can be made by airplane in the time necessary for a journey to the state capital at Oklahoma City using surface transportation. In addition to this saving in time, which enables the execu-

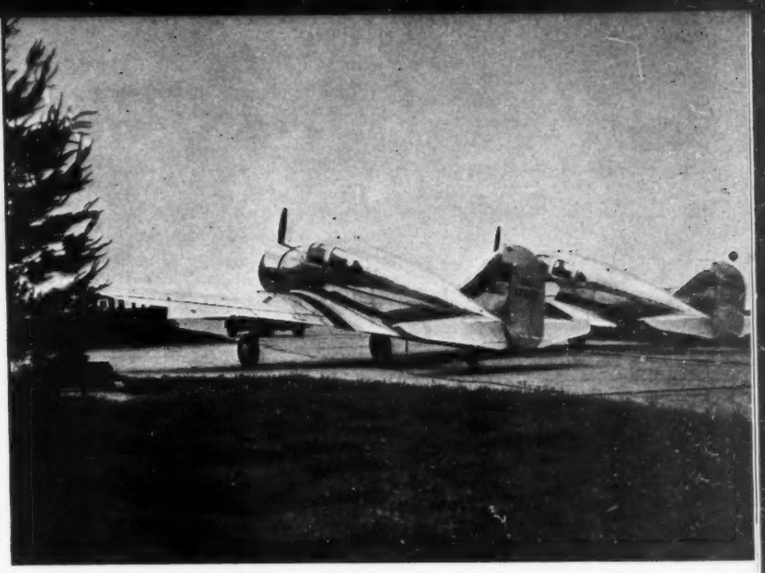
Trans-Atlantic Planes to Carry 5,000 Gallons of Fuel

The world's largest aircraft which will shortly inaugurate a trans-Atlantic passenger and mail service similar to that now in operation between the United States and the Orient, will carry 5,000 gallons (18 tons) of gasoline and will have a cruising range of 5,000 miles.

Each plane will be powered by four twin-row, air-cooled engines of 1,500 hp. Six of these super-Clipper planes will be placed in service. Each of these huge ocean airliners will weigh between 40 and 50 tons and will be 50 per cent larger than any heavier-than-air craft now in service.

The planes will carry 72 passengers and a crew of 8 with sufficient capacity for 5,000 pounds of freight. The cruising speed will be approximately 200 miles per hour. British Imperial and Pan American Airways will make the experimental flights through an arrangement made by U. S. Department of Commerce with Canada, Ireland and Great Britain. The North American landing point will be Botwood harbor, 150 miles northwest of St. Johns, Newfoundland.

Airplanes Add ting Efficiency



Spartan All-Metal Executives owned by Lee Drilling Co. and Olson Drilling Co.

tive to accomplish considerably more work, he finds that he reaches his destination in better physical condition and with much less fatigue than if he had spent an entire day in a train or automobile.

Although in most instances the airplane provides a means of transportation that is economical when the time element alone is considered, speed is not its only virtue; nor does rapid transportation of its officials comprise the extent to which the Phillips Petroleum Co. uses its aircraft.

Perhaps the next most important phase of Phillips airplane operations is aerial photography. From the preparations of surveys of oil-producing properties to the mapping of pipe line routes, the airplane has proved itself invaluable, and has completed these projects at a fraction of the time and expense that would have been required had ground crews been used instead.

Meeting Emergencies

In every emergency where speed is essential the airplane plays its part, and Phillips ships have been in that role so long that emergency has come to mean routine. Several times they have flown a race with death in transferring sick and injured employes to proper medical care. They have carried pay rolls and have delivered maps and important documents to distant points when they were needed at once and no other form of transportation could meet the deadline. They have been used to test aviation gasolines and oils, in the manufacture of which the company has long been an important factor.

Airplanes bearing the Phillips shield have been used by motion picture producers, they have written advertising messages in smoke 10,000 feet above busy cities, and by attendance at air shows, participation in air tours, etc., have had no small part in keeping the name of "Phillips 66" before the motoring public. On airports from Canada to Mexico, and from Miami to Seattle, Phillips has become a familiar word.

Phillips airport, at Bartlesville, Okla., is owned and operated by the Phillips Petroleum Co. and is one of the finest airports in that section of the country. Three large hangers house the fleet, and the field has surfaced runways and is completely lighted for night operations. Service is available both day and night, and all repair work is done by licensed mechanics at the overhaul stop maintained on the airport. That the company in its 11 years of flying has had no airplane involved in an accident of any kind, is a great tribute to the efficiency of its flying and maintenance personnel and to the management of Billy Parker, who has been actively engaged in the aviation industry since 1912. The company also operates a radio station at the airport which keeps in constant touch with its airplanes while in flight and is also available to visiting and transient ships. Through the field's radio facilities, company pilots secure the very latest weather information prior to departing on every flight.

Frank Phillips, president of the Phillips Petroleum Co., has long been a friend to aviation, and only recently was awarded a trophy by the Oklahoma Aviation Club for having contributed most to aviation in Oklahoma during the past two years. His personal interest in aviation has done much to further progress in that industry.

Through his sponsorship Art Goebel won the Dole race to Honolulu, and Wiley Post was enabled to perform his many experiments in stratosphere flying which immeasurably enriched our knowledge of that phase of aviation, so important at this time and likely to be even more so in the future.

100-OCTANE FUEL ON RECORD FLIGHT

Howard Hughes, widely known in the oil business, in January established a new record of 7 hours, 28 minutes, 55 seconds in a transcontinental flight of 2,490 miles. The average fuel consumption was 10 miles per gallon. Following are the specifications of the fuel used:

Color, min.—21.
Copper dish—negative.
Accelerated test, max.—10 m.g.
Sulfur per cent, max.—0.10.
Freezing point—minus 76° F.
Reed vapor pressure at 100° F., max.—7.0 lbs./sq. in.
Octane Number, A.S.T.M., min.—100.
Lead fluid, max.—3 ml.

Distillation (Evaporated per cent)	°F. max.
10	167
50	212
90	275

Residue, max. per cent—2.

Large Gasoline Buyers

Major air-line operators are among the largest buyers of motor fuels in the United States. American Airlines, Inc., and United Air Lines each recently placed contracts for more than 10,000,000 gallons of aviation gasoline to cover approximately one year's requirements. The sellers deliver the gasoline to the various airports from which these lines operate.

The American company's contract calls for gasoline of five different antiknock ratings ranging from 80 octane to 95 octane. The company's fleet of airplanes flies approximately 1,500,000 miles monthly. Average consumption for the fleet is 91.3 gallons per hour or 2 miles per gallon. The planes fly 50,000 miles daily, which is equal to two trips around the world every 24 hours.

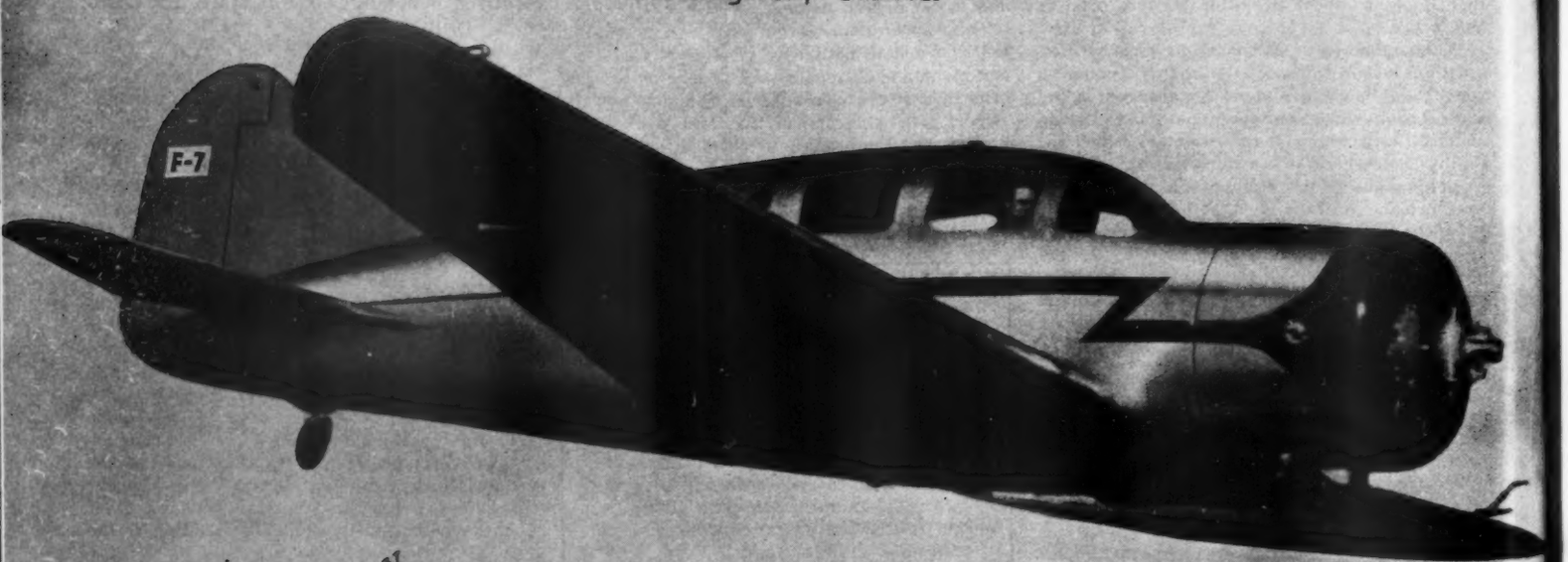
Loffland Brothers Company, drilling contractors, Lockheed "12" and Pilot Eddie Ross

SPARTAN ALL-METAL EXECUTIVE

State Government
San Luis Potosi, S. L. P.

Transportes-Aeras de Jalisco
Guadalajara, Mexico

China Aeromotive
Aerial Survey
Shanghai, China



Lee Drilling Company
Tulsa, Oklahoma

Lucey Products Corporation
Tulsa, Oklahoma

Olson Drilling Company
Tulsa, Oklahoma

To the executive who finds travel is taking too much of his time, the Spartan All-Metal EXECUTIVE is bringing an entirely new conception of time. Distant places are within hours in place of days. Traveling in the Spartan smartly tailored cabin complete with all appointments for comfort and instruments for safety. Controlled ventilation. Safety and durability of all-steel construction. Superiority of performance. Companies like the above, here and abroad, find the EXECUTIVE taking them where they want to go with an utter disregard for distances, landing them with a new refreshed and clear-eyed feeling, with energy for the job – NOT TAKEN OUT in travel.

TODAY'S BUSINESS *Flys* AHEAD OF COMPETITION

SPARTAN AIRCRAFT COMPANY

TULSA, OKLAHOMA, U. S. A.

Three Industries Cooperate to Advance Aviation

By HENRY D. RALPH

Beechcraft plane of Stanavo landing in an oil field

WASHINGTON, D. C.—A prime example of cooperation between industries is the work of the automotive, aviation and petroleum industries in developing better automobile and airplane engines and fuels and lubricants which will permit greatest economy and effectiveness in operation.

The results of years of cooperation are apparent in the development of 100-octane fuel, in the discovery of iso-octane and similar chemicals making available 100-octane fuel in commercial quantities, and in the phenomenal advances in design and manufacture of aircraft.

An outstanding result has been the development of 100-octane fuel for airplane engines. "Octane number" as a measure of the ability to withstand high compression in an engine without detonation, or knocking, is one of the most important characteristics of aviation fuels. Research uncovered the fact that addition of tetraethyl lead to gasoline cuts down detonation. However, there is a limit to the quantity of tetraethyl lead an engine will stand without harm, and this limit was reached when 87-octane aviation gasoline was introduced. This is the gasoline in general commercial aviation use, and with realization science had gone as far as it could in developing fuel by addition of lead, engineers set out in a different direction to find a better fuel.

The result was the manufacture of iso-octane and the group of similar chemicals, development of which has made possible the new 100-octane fuel used by the army and navy and just coming into use in commercial aviation. These chemicals are being manufactured in commercial quantities by several large refineries, and engineers predict they will soon be available at a price which will permit commercial air lines generally to take advantage of them.

The new fuel gives aviation another means of increasing speed of commercial and military airplanes, with the additional advantage of economy. The increase in speed results from ability to build new engines of the same dimensions as the present aircraft engines but of much greater power. Because in present day aircraft engines are located along the front of the wings and at the front of the fuselage, the size of the engine has a large effect on the speed that is possible. If more power can be secured with the same size engines, the speed will be increased.

On the other hand, if airplane operators desire more speed, and also more economical operation, it is now possible by using smaller engines operating on 100-octane fuel, to develop the same power produced by larger engines now in operation.

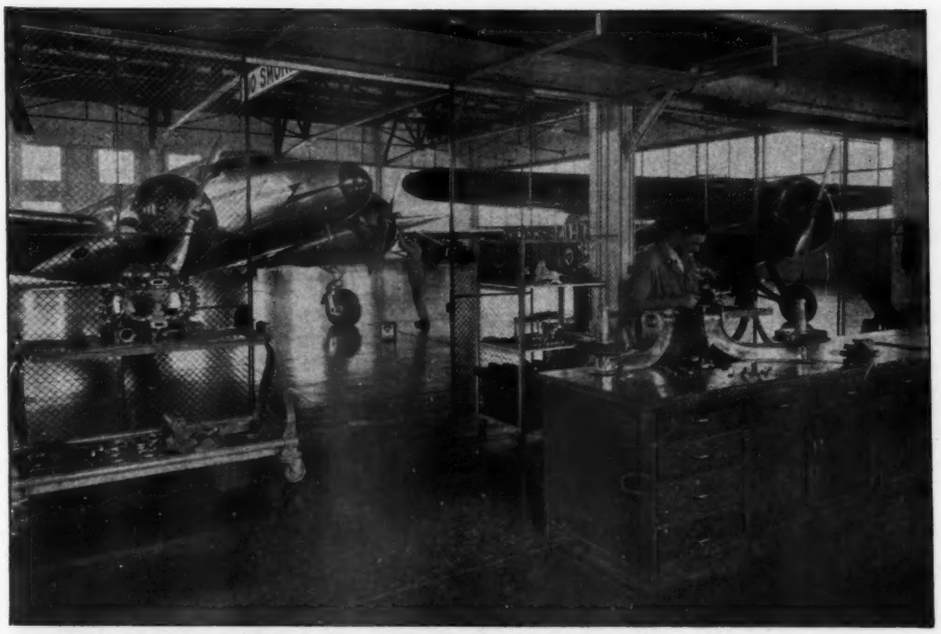
These speed and economy possibilities arise from use of 100-octane fuel in engines particularly designed for such fuel. The factor which, at present, determines the power output of aircraft engines is "B.M.E.P.," or "Brake Mean Effective Pressure." The layman knows it as "the compression in the cylinders." Experiment has shown various types of gasoline will stand various amounts of B.M.E.P. without detonating. For aviation use engineers select a gasoline having the highest possible octane number, and then add tetraethyl lead to increase the engine's resistance to detonation, which allows its use in higher B.M.E.P. engines. The height of development in this line was reached with 87-octane aviation gasoline. However, with the use of the new fuels it is possible to make 100-octane gasoline without using more lead than now used in 87-octane gasoline.

In addition to making possible 100-octane gasoline, iso-octane and the similar chemicals permit use of 80- or 87-octane fuel for present day engines without the lead formerly necessary. These unleaded fuels will enable operators to realize important economies in operation of present day engines because the unleaded fuels are easier on the valves, valve guides, valve seats, and spark plugs, and replacement of these parts can be reduced to a minimum.

However, with the development of the new fuel, engines must be specifically designed for its going hand in hand. In a paper before the Society of Automotive Engineers last summer, Lieut. Frank D. Klein of the Army Air Corps said:

"To take maximum advantage of 100-octane fuel, engines must be especially designed for its use. There are two extremes of conditions for which engines can be designed. On one hand are long range airplanes, in which low specific fuel consumption is of the major importance. In this case, increases in engine weight per horsepower

(Continued on Page 86)



Interior of Ponca City Municipal Airport, showing Continental Oil Co. shop in foreground, and two of company's three planes; left, one of two Lockheed "12's"; right, a Lockheed Vega

Aerial Survey Is Essential in Modern Oil Operations

By L. G. E. BIGNELL

The airplane plays an important part in the oil industry in all departments. The land man flies over acreage being considered for lease to be followed by the company's geologist. Oftentimes they cover the area together. From the air many geological features not to be easily observed from the ground can be studied and important decisions made without the need of the final aerial surveys. With a good general knowledge of the region under consideration the geologist can determine many structural features of major importance by a flight over the area.

These preliminary flights are followed, if the area looks favorable, by geophysical survey and it is common practice to photograph the land surface from the air. Aerial photographic mapping has been used by the oil industry for about 10 years and has developed from a rather crude type of picture usually picturing only a small area to the modern mosaics which cover thousands of square miles of the territory in the Mid-Continent, Rocky Mountain and Gulf Coast regions as well as large sections of other parts of the country.

The technique of aerial photography for this kind of work has been greatly improved both in photographic and developing equipment and it is now common practice to secure a great number of perfectly matched pictures of an area in which every detail of the land surface will be revealed all on a predetermined scale. The area is usually divided into units known as "grids" covering about 64 square miles in the latitude of Texas or an 8-mile square. These grids are the basic units for the building up of mosaics and these pictures also serve as the base maps for tracing other detailed maps to be used for many purposes.

In taking a series of pictures of this type the plane will fly at an altitude of a little more than 12,000 feet above the land surface to secure a 1-inch to 1,500-foot scale picture and the camera will operate automatically using a roll of special films for pictures about 7 by 9-inch size.

After these pictures have been developed they may be placed on an illuminated glass table or plate and over the picture is placed a sheet of transparent celluloid on which is traced all of the details required to make a first class map. These maps may find many uses in the land, production, pipe line and geological departments. As the pictures are to a known scale it is possible to check position of surface structures or other features with land office maps, county plats of ownership maps and tie all features into bench marks so that accuracy of the whole map is definitely assured. As many prints as needed can be made from the celluloid master map, which is filed for permanent record.

These aerial pictures and line maps are used by both the geological and geophysical departments in much the same manner. If the area is to be surveyed by the use of seismograph, torsion-balance, gravimeter or magnetometer methods the application of controlled photographic maps is much the same.

The general conditions are studied on the large mosaic and the principal roads, streams, railroads and other physical features of the country noted carefully. The man in charge of the geophysical field party will use these pictures to outline his work and thoroughly acquaint himself with the details of the area to be shot. He does this work in the office before the party leaves for the scene of action and in this way he is able to proceed directly to his objective and start work promptly. As the map or picture is scaled he can lay out his plan of procedure and where it is necessary to get into places not easily accessible from one highway he is usually able to lay out some other route into the area.

The stations for the various shots to be taken are laid out in advance and by working with the aerial picture it is possible to select these places accurately giving consideration to all conditions making for proper execution of the field work. If the original picture is not large enough to give some details it is a simple matter to make enlargements on which every detail may be easily picked out. Woods, which may appear on a small picture to be so thick that it will be impossible to move a truck into them, may be found to have many paths and openings when studied on an enlarged map suitable for all purposes of the party.

The use of aerial pictures in geological work is also a big advantage for surface marks do indicate quite accurately structural features which could not be readily recognized by a ground party. Frequently the outline of salt domes are plainly shown on aerial pictures and in many instances faults and other structural features have been observed and mapped from pictures taken from the air. Being able to use these pictures and maps in this manner saves time and in planning geophysical work it will save many stations or lines in some instances and above all the work can be accurately planned and executed.

In the field, the geologist can carry pictures or contact maps of the area he is working and upon the picture or map, mark details he has been able to work out on the ground. One well known geologist working in West Texas and New Mexico uses an airplane to cover territory he is interested in and as the plane flies over the region he takes pictures from the open door of the ship. These are oblique pictures but he has found them helpful for study in his office. In the field they are used for working local structures.

In many states there are many areas in which original land surveys lacked accuracy. It has been found that aerial pictures are of much value in

(Continued on Page 74)

Kargl Aerial Surveys, Inc.

Vertical photo of Scott's dome

Petroleum Industry Big Patron of Air Transportation

NEW YORK, May 18.—Extension of commercial airline facilities into all important cities of the United States has eliminated much of the previous need for privately owned planes in the routine operation of oil companies. Without exception, however, oil companies as a class are one of the big patrons of commercial airlines using the facilities available unstintingly when time conservation is an important factor.

In special work private ownership of airplanes among oil companies is still widespread.

Just how extensiveiy commercial airline facilities are utilized by oil companies may be reflected by Standard Oil Co. of New Jersey's experience in 1936 when its employes flew a total of 36,000 passenger air miles over these routes. In addition, the company has owned a total of 23 different planes since 1928 when serious attention was turned to supplying aviation with special motor fuel and oil. At present, Standard of New Jersey operates seven airplanes, three Stinsons, a Waco, a Douglas Dolphin, a Fairchild and a Beechcraft.

Shell Petroleum Corp. will receive delivery this summer on a high-speed Seversky which will increase its fleet to a total of four. The new Seversky, in addition to other special features, will be equipped for high-altitude work.

Pure Oil Co. operates a Bellanca Pace Maker, Fokker Standard Universal and Stinson Cabin, powered with Pratt & Whitney Wasp, Jr., Wright Whirlwind J-6 and Lycoming High Compression motors, respectively. The company operates each of its three ships an average of 7,500 to 9,000 miles per month in various branches of its activity, but largely confined to sales work. During the past four years the company has operated a total of seven airplanes.

On the day Colonel Lindbergh landed his Spirit of St. Louis in Paris, Standard Oil Co. (Indiana) accepted delivery in Detroit of a Ford tri-motor passenger ship. Several company directors occupied the plane on its maiden flight from Detroit to Chicago. The company since has operated three tri-motor ships, but now uses commercial airline facilities for all such transportation requirements, except for a small plane used in the aviation sales department.

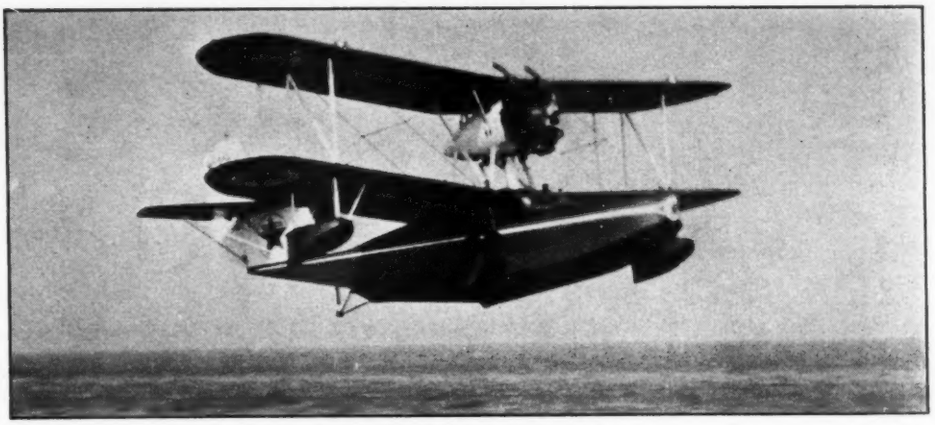
Union Oil Co. of California has used one or more airplanes in its operations for the past nine years, being equipped at the present time with a Stinson Reliant four-place cabin monoplane.

Dating from an active interest in aviation launched in 1928, Standard Oil Co. of Ohio has operated a total of six airplanes consisting of four Wacos, one eight-place Stinson, one Ryan and one Autogyro. At present the company operates a Waco (1937) cabin ship powered with a 350-hp. Wright engine. The company ship is used for whatever type of operations seem justified, but is available to any department head or salesman who can show the need for speedy transportation.

The Texas Co. owns and operates a total of eight airplanes. Six of the ships are land planes of the cabin type, one an open cockpit land plane and one a cabin amphibian.

Two cabin Waco airplanes and one cabin Beechcraft are operated by salesmen pilots and aviation department executives of the Socony-Vacuum Oil Co. in contacting airports and for direct sales solicitations only. The company's affiliate, Vacuum Oil Co., Pty., Ltd., Melbourne, Australia, operates a cabin Stinson airplane for sales work. Executives of the company mostly use commercial airline facilities.

Much pioneer work in aviation was done by Standard Oil Co. of California on the Pacific Coast during the early struggles of aviation. At present the company operates a plane in Arabia for aerial mapping and for transportation of supplies from Persian Gulf terminals to field parties working inland.



Texas Co. amphibian plane

ACCURATE INFORMATION

As one of the pioneers in the field of Aerial Photography, we now have immediately available accurate Aerial Photographic and Regional Base Maps of more than 220,000 square miles of active oil areas in the southwest territory, and Photographically Controlled Ownership Maps of forty Texas counties and all southern Louisiana.

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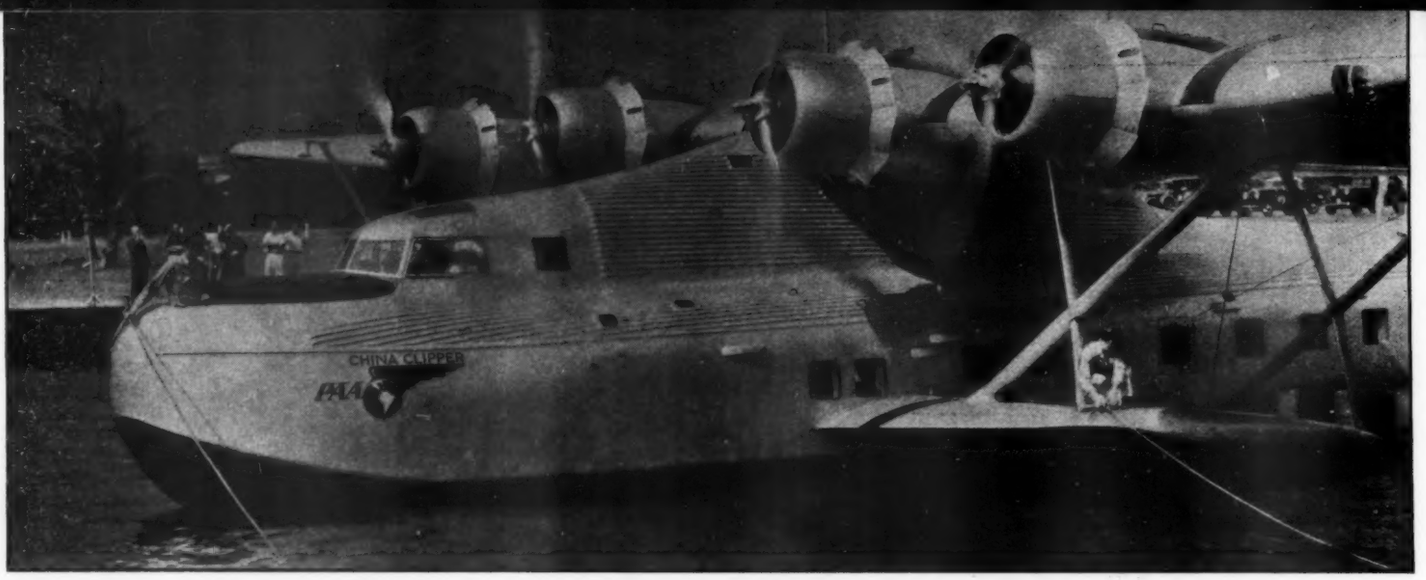
"There can be no finer map than a photograph of the land itself"



Rapid consumer of petroleum products — Pan American Airways Trans-Pacific China Clipper

Quality of Aviation Motor Fuel Shows Steady Improvement

By R. C. ALDEN and BILLY PARKER
Phillips Petroleum Co.

The following paragraphs give a brief and general review of the quality of fuels for use in air-cooled aviation engines.

A chronological review of specifications reveals that, except for antiknock characteristics, there has been little change in regard to the requirements for aviation gasoline. Aviation gasoline is and always has been more volatile—that is, lower boiling—than motor fuel. On the other hand it has been found necessary to limit the Reid vapor pressure to 8.5 pounds and usually to 7 pounds in contrast to motor fuel vapor pressures of 8 to 12 pounds and even higher. An important requirement of aviation gasoline has always been its freedom from gum formation. This necessity is imposed by the long storage intervals frequently encountered, particularly in tropical countries.

The greatest change in requirements for aviation gasoline has been in antiknock characteristics and here the change has indeed been rapid. For purposes of emphasizing this rapid change Table 1 shows the proportions of aviation gasolines the Air Corps has requested bids on over the past seven years.

In general the octane number specifications for commercial air lines follow the specifications of the military services at an interval of about four years. Thus the prevailing gasoline for air line use in 1932 was 73-octane number while in 1936 it was approximately 83. It is an interesting corollary that the octane numbers of motor fuel have had much the same chronology from the long-time perspective and this is one of the many reasons for the keen interest of the oil industry in aviation. It is common knowledge that the latest development in regard to aviation gasoline is the large scale synthesis of iso-octane (2,2,4-trimethyl pentane). This synthesis involves the selective polymerization of the isobutylene in refinery vapors to di-isobutylene followed by hydrogenation of the polymer to yield the iso-octane. The amount of iso-butylene in refinery vapors is subject to considerable variation but it may be a fair estimate that for about every 150 bbls. of crude oil run there is enough isobutylene in the refinery vapors to yield 1 bbl. of iso-octane.

TABLE 1—PER CENT OF REQUIREMENTS OF AIR CORPS FOR GASOLINES OF VARIOUS OCTANE NUMBERS

Oct. No.—	1930	1931	1932	1933	1934	1935	1936
58-65	56.4	31.6	16.6	6.5	5.3	3.9	3.5
87	43.6	68.4	83.4	50.2	....	....	....
92	....	....	....	43.3	94.7	91.7	77.5
100	....	....	....	....	....	4.4	19.0
Average ..	70.6	77.7	82.2	87.3	90.2	91.3	92.6

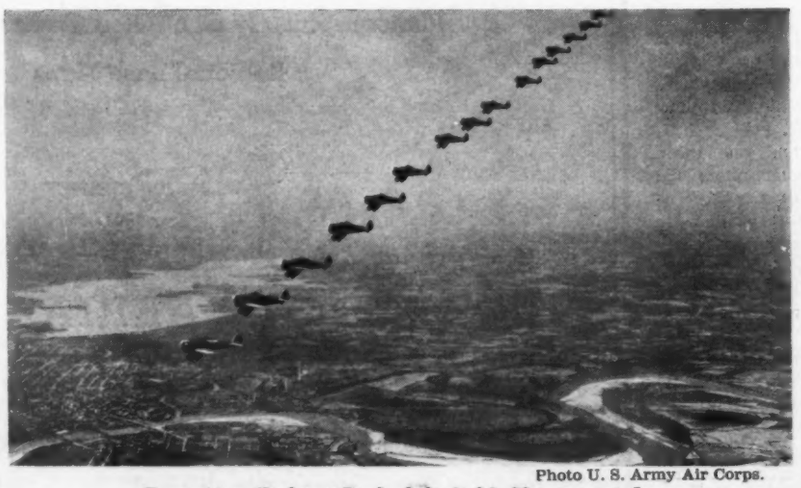


Photo U. S. Army Air Corps.

Formation flight at Barksdale field, Shreveport, La.

The synthetic iso-octane is blended with the usual aviation gasoline stock of 70- to 75-octane number in such proportions that the finished blend with 3 cc. of tetraethyl lead per gallon will be 100-octane number. Sometimes iso-pentane, derived from natural gasoline, is added as a means of reducing the per cent of iso-octane required.

There are several other synthetic hydrocarbons besides iso-octane which offer definite commercial possibilities in the field of high octane number aviation gasolines. The basic works of Boyd, Edgar and their coworkers delineate the potentialities of many of the hydrocarbons. Iso-octane has the advantage of being one of the highest boiling of the high antiknock hydrocarbons. This is of assistance in blending because in general volatile blending gasolines can be used and these have superior antiknock characteristics.

In contrast to iso-octane (boiling point 211° F.), which must be laboriously synthesized from a small increment of the petroleum supply, iso-pentane occurs naturally, and is relatively cheap. Iso-pentane (boiling point 83° F.) has an octane number of 90 and with 0.65 cc. tetraethyl lead per gallon is 100-octane number. This antiknock superiority of iso-pentane readily explains its usefulness as a blending ingredient in very high octane number aviation gasolines. It is startling to realize that iso-butane has an octane number of 99, almost equal to that of iso-octane. Iso-butane occurs in large quantities in natural gas and may ultimately be a large source of iso-octane. In this event the finished product will have only slightly better anti-

knock characteristics than the starting feed stock. The sole change will have been to raise the boiling point. These facts illustrate the desirability of investigative work leading to the utilization of the more volatile aviation gasolines.

The development of iso-octane as an aviation gasoline is typical of the quality trends in this field. For years the tendency has been to stress the paraffinic types of gasolines and specifications have been written with the avowed intention of excluding the others except in small proportions. Thus, the military services have specified methods of knock testing which rapidly depreciate the aromatics. In addition, heat content specifications, coupled with water tolerance and gum specifications, have been used to limit the use of such blending ingredients as alcohols, ethers and so forth. Likewise, the air lines have made use of the acid heat test as a substitute for the radically different knock testing method otherwise required.

As a point of interest in this connection, benzene has an octane number of 88 by the Air Corps test method while by the A.S.T.M. motor method benzene matches iso-octane plus 5 cc. of tetraethyl lead.

Although numerous full scale engine tests support the choice of paraffinic gasolines there are undoubtedly many gasolines which might render satisfactory service but which cannot meet specifications. The justification for the arbitrary and empirical stand is that there is a large enough supply of the selected gasolines so as not to warrant the risks with border line products.

An important factor in antiknock specifications for aviation gasolines has been a maximum tetraethyl lead content. At one time experience indicated there was a pronounced difference in aircraft engine maintenance costs and in general reliability of operation with gasolines containing varying proportions of tetraethyl lead. Reliable tests indicated there were, at least for some equipment, pronounced break points for such critical concentrations as 1.5 and 3 cc. per gallon. Exhaust valves and valve seats have been so much improved that most of the difficulty from this source has been eliminated.

Even before the advent of 100-octane aviation gasoline, the testing methods for determining the antiknock characteristics of aviation gasolines were in an unsatisfactory condition. To remedy this, the cooperative fuel research committee had initiated an intensive program to correlate knock testing with full-scale engine tests. A vast amount of work was concluded just about the time 100-octane number gasoline appeared on the horizon. The committee continued its research work and has since then been engaged in intensive studies of knock testing in what has been termed the "stratosphere" of octane numbers. No adequate method of testing has yet been devised because of two very serious handicaps, (1) engines have not yet been designed to take full advantage of 100-octane gasoline, (2) although many substances and concoctions have approximately 100-octane number or better, only the iso-octane blends have thus far been of commercial significance. This vital work is nevertheless going forward. The important point at this writing is that octane numbers much above 90, although frequently referred to with glibness, are usually of very uncertain significance.

In general the purchasers of aviation gasoline have adjusted specifications so as to obtain the cream of available supply. Thus, the present situation is that most commercial operations are being conducted with take-off gasoline of 87-octane number and cruising gasoline of 80-octane number. The 87-octane gasoline with the other desired qualities can be obtained only from carefully selected crude oils and after several years' search only limited quantities are available. In spite of this condition, practically all of the new equipment going into service, or projected, is such as to require a minimum of 87-octane number for satisfactory service.

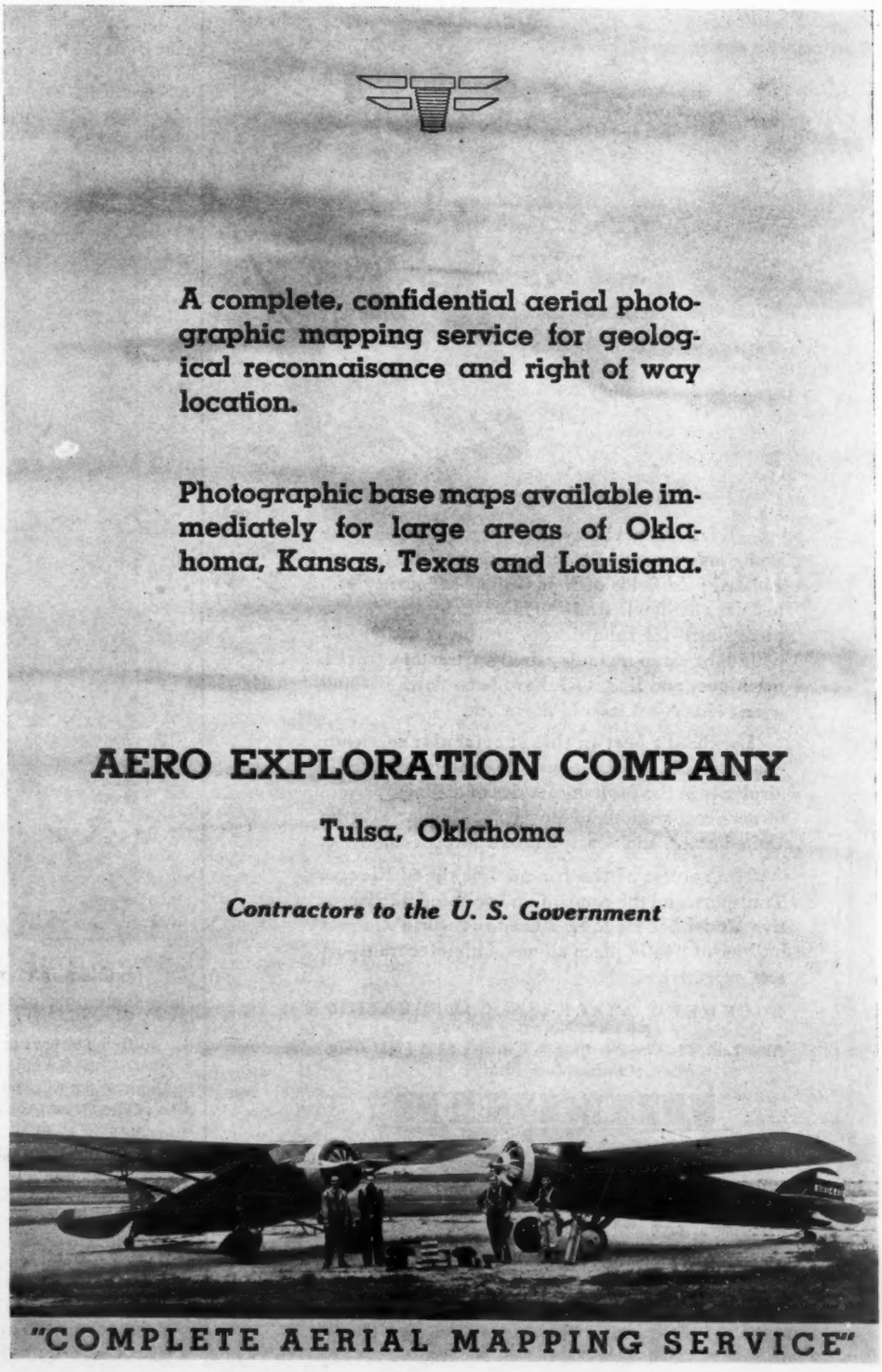
AVIATION GROWING

(Continued from Page 65)

throughout the full range of air speeds, temperature and other varying conditions.

The lubricating system must provide for starting the engine and adequate distribution in cold weather to meet such emergency conditions as may arise in operation of either commercial or military airplanes. The question of supplying good lubrication to the engine immediately after starting and the elimination of an undesirable oil warm-up period is especially important in airplane operation. In meeting the requirements for long periods of operation, various types of oil-cooling systems are employed. Shutters to control the air flow or a by-pass valve which will direct the flow of oil through or around the cooling elements are available. With an unjacketed type of oil cooler, when cold weather is encountered, the oil may by-pass the core completely for a while to avoid over-cooling. When this occurs the oil will congeal in the core, and if the cooling air is cold enough, circulation can not be reestablished. To avoid this condition, the jacket is added to the cooler and it surrounds the entire unit so that all the by-passed oil flows through the jacket and in so doing will warm a complete passage through the core. This prevents complete congealing in the core and permits reestablishment of the flow for cooling.

The Air Corps employs a regulating valve for directing oil through or around the cooling element which operates on a viscosity index rather than on temperature. In order to avoid cooling of the viscous oil below starting consistency, the Air Corps has adopted a manual valve which permits injection of gasoline into a portion of the lubricating oil system which will properly lubricate the engine until operating temperatures are established.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AERIAL SURVEYS

(Continued from Page 70)

checking the boundaries of land in those areas because the position of buildings, roads, telephone or telegraph lines and other physical features are plainly shown and by checking with other known data it is possible to establish property lines accurately. Such maps are now accepted as evidence by courts and often have aided in establishing the ownership of vacant spaces or overlaps existing between properties which have had to be adjusted by legal means. In West Texas, the use of airplane pictures has proven of much value in settling many cases in court involving several millions of dollars.

The use of aerial pictures is not by any means confined to the geological, geophysical and production departments of the oil industry. Having observed the success of these departments in using these data, the transportation departments of many companies now have aerial maps made of the right of way for pipe lines. There are many advantages to making a mosaic of a right of way to be used for the construction of a pipe line. It is possible by careful study of these pictures to determine many important details of the area through which the line is to pass and to select alternative route.

Approaches to large streams present a very definite problem for pipe line engineers. There are numerous conditions which have to be considered in deciding where it will be best to lay the line across the stream. A large town may be on the bank of the stream in line with the right of way and it may be of advantage to so deflect the route as to pass either above or below this town for certain definite reasons. To make such a deflection will require the change of position of the pipe line several miles back from the stream but with a good mosaic to work from it is easy to plot the best route.

The river crossing itself presents problems best solved by the study of aerial maps. From the air, the course of the stream is very clearly shown and

Aero Exploration Co., Tulsa.

Looking into a plane equipped for aerial photography, showing camera, finder, oxygen tank, map and records

the positions of bars and natural and artificial obstructions in the stream are studied. It is known that once a stream begins to cut out a bank each succeeding high water will change its course more and more. By having a good aerial map of the stream for some distance above and below the pipe line crossing it is possible to study the probable future effect of the meanderings of a stream and then select a crossing point where the future damage will be reduced to a minimum.

The production department uses aerial maps for many purposes and it is not uncommon practice to make pictures of leases, or whole oil fields, and use them for the location of all surface buildings and property lines. If the property has not been completely drilled up, a study of the aerial pictures sometimes indicates where the remaining locations can be best made, especially when the land surface is hilly and covered with trees.

Pictures of large tank farms taken from the air serve to show the condition of tank roofs, and this type survey can be made very quickly.

Gas Hydrates in Natural Gas Pipe Lines

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and E. M. FROST
U. S. Bureau of Mines, Amarillo*

The petroleum and natural gas division of the U. S. Bureau of Mines is studying gas hydrates and their relation to the operation of natural gas pipe lines. The Natural Gas Department of the American Gas Association is cooperating with the bureau in this work. The study is by no means complete, but some of the finding to date are being presented with the thought that they may be of immediate use to the industry.

Interest in this problem is widespread because

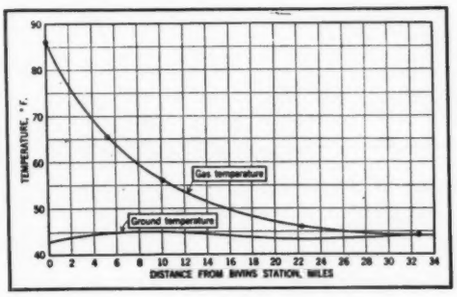

Fig. 1—Temperature along pipe line downstream from Bivin's compressor station

the freezing of natural gas pipe lines is not confined to areas of extremely low winter temperatures, but is experienced everywhere that gas is transported under high pressure. The reason for the common occurrence of pipe-line freezing is that natural gas under pressure will combine with water to form solid compounds that resemble ordinary ice but remain solid at temperatures much higher than the normal ice point of 32° F. As many cities and towns with large numbers of domestic patrons are served with natural gas from remote fields, it is imperative that the flow of gas through transmission lines be uninterrupted. Failure of a pipe line to deliver gas for any reason whatever is a condition that cannot be tolerated long.

The general program of the bureau's study is divided into four phases, as follows:

1. Review of the literature.
2. Field study of the problem.
3. Laboratory investigation of the physical and chemical properties of gas hydrates.
4. Study of methods suitable for preventing or relieving freeze-ups in natural gas pipe lines.

Progress has been made on each of these phases.

Review of Literature

Little material regarding gas hydrates has been published. The most outstanding contribution is that of Hammerschmidt,[1, 2] who presented a paper on gas hydrates at the meeting of the Natural Gas Department, American Gas Association, in May, 1936. Investigations of gas hydrates were reported by Villard[3] as early as 1888 and by De Forcrand[4] in 1902. Since that time a few articles on gas hydrates have been published, most of them dealing with gases not commonly found in natural gas. Freezing in gas pipe lines at temperatures above 32° F. was referred to by Johnson and Berwald of the Bureau of Mines in 1935[5] and a paper discussing gas hydrates and their relation to pipe-line operation was presented by one of the writers[6] at the Southwestern Gas Measurement Short Course at Norman, Okla., in April, 1936. A discussion of gas hydrates appears in the Chemical Committee Report[7] of the American Gas Association for 1936.

Pipe-Line Temperature Survey

Considerable progress has been made in the field study, particularly in the temperature survey which has been under way since January, 1936. As mentioned, gas under pressure in association with water will form hydrates at temperatures considerably above 32° F.; in general, the higher the pressure the higher the temperature at which hydrates will form. To determine the possibility of hydrate formation in a pipe line, it is necessary to know both the temperature and pressure of the gas; one is as important as the other. The pressure is easily determined and is usually available from the records of operation but the temperature of the gas in the pipe line is seldom known. In the bureau's contact with the industry, it has been observed that usually little information about the temperature prevailing in pipe lines is available. To supply this information, a temperature survey of a representative pipe line was undertaken.

The management of the Amarillo-Denver pipe line, operated in Texas by the Canadian River Gas Co. and in New Mexico and Colorado by the Colorado Interstate Gas Co., offered to cooperate in conducting such a survey. This pipe-line system was chosen for study because of its proximity to the Bureau of Mines laboratory at Amarillo, where the hydrate investigations are being carried on.

***A. G. A.*—Presented before meeting of Natural Gas Department, May 12, Kansas City, Mo.**

The Amarillo-Denver pipe line starts at the Bivins compressor station, about 35 miles northwest of Amarillo, Tex., and extends 340 pipe-line miles to Denver, Colo., From Bivins to Pueblo, Colo., it is 22 inches in diameter and from Pueblo to Denver 20 inches in diameter. The gas delivered through this line is gathered from the Texas Panhandle gas field, principally from Moore and Potter counties. After compression at the Bivins station the gas passes through an oil-absorption gasoline plant and enters the pipe line at a pressure of 300 to 350 pounds per square inch. When it leaves the absorbers, the gas is saturated with water vapor at a temperature of 75° to 90° F. The load on this pipe line ranges from 25,000,000 to 85,000,000 feet per day.

In making the temperature survey the bureau established a number of temperature-measurement stations along the line at selected points as far north as Colorado Springs, Colo., about 270 pipe-line miles from the Bivins end of the line. To determine where the gas leaving the compressor station attains ground temperature, stations for measuring the temperature were established at each of the main-line gate valves between the Bivins compressor station and Dalhart, Tex., a distance of 42 miles. These valves are approximately 10 miles apart. One additional station was established at a point 5 miles downstream from Bivins station. Temperature measurements at these stations were made with thermocouples. Figure 1 shows that in this pipe line the gas attains ground temperatures about 30 miles from the compressor station.

Several thermocouples were installed at the temperature station 5 miles downstream from the Bivins compressor station to determine how far from the pipe the ground temperature was affected by the warm gas in the line at this point. The thermocouples were placed in the ground at the depth of the center of the pipe, which at this location was 50 inches. One thermocouple was atached to the pipe and the others were placed at distances of one-half, 1, 1½, 3, 6 and 12 feet from the pipe. Figure 2 shows the distribution of temperature determined by tests at this location.

In addition to the thermocouple installations, 14 recording thermometer stations were established along the pipe line between Bivins and Colorado Springs. At some of these stations temperatures at several depths were recorded through the use of multiple-pen or a number of single-pen instruments. In making measurements of the gas temperature, a separable thermometer well was placed in the pipe line, which allowed the thermometer bulb to project about 6 inches into the gas stream. Recording thermometers, fully compensated for ambient temperature effects, were used at the more important installations to give an accuracy of plus or minus one-half degree. Where thermometers with uncompensated tubing were used it was necessary to make adjustments from time to time to avoid errors of one degree or more.

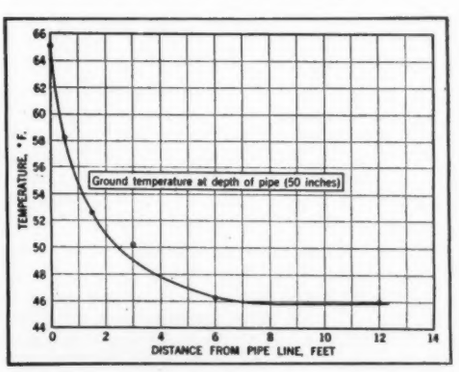

Fig. 2—Distribution of underground temperature at right angles to pipe 5 miles downstream from Bivin's compressor station

To observe the variation of underground temperature with changes in atmospheric temperature, a number of recording thermometers were installed at each of the several stations. Figure 3 shows, over a period of nearly a year, the varia-

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tion of gas temperature and the average daily atmospheric temperature for an installation in an area known as the Black Forest, about 15 miles northeast of Colorado Springs. At this station the center of the pipe is at a depth of 47 inches. The average atmospheric temperature used in Figure 3 is the average of readings at 8 a.m., 3 p.m., and 12 midnight, which was found to agree closely with the average of hourly readings. It will be noted that even though the air temperature varied greatly, the gas temperature remained relatively uniform, changing slowly with the season. The underground temperature at the depth of the center of the pipe line also was recorded at this station, but it agreed so closely with the temperature of the gas that it is not shown as a separate curve. The difference between ground and gas temperature at this point was not more than 1° at any time during the year. The same conformity of gas temperature and ground temperature at the depth of the center of the pipe line was observed at the other temperature-measuring stations where the gas temperature was not influenced unduly by compressor stations, river crossings, or abrupt changes in pipe-line cover.

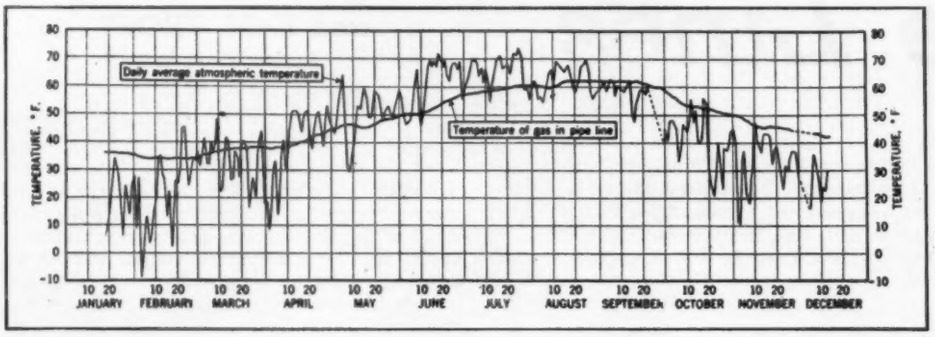


Fig. 3 — Variation of atmospheric and pipe line temperature at the Black Forest station

In addition to the three temperature records mentioned above, ground temperatures at depths of 6 to 18 inches also were recorded at this Black Forest station. Figure 4 shows the variations of underground and atmospheric temperatures on an enlarged time scale. It will be noted that changes in the gas temperature lagged three to five days behind the corresponding changes in atmospheric temperature and that daily fluctuations in the gas temperature are entirely absent. This lag is typical of observations made at other points along the line. The time lag in the response of underground temperatures to changes in atmospheric temperature should be emphasized; although it is commonly recognized that a lag exists, its magnitude frequently is poorly "guessed at."

At the Arkansas River crossing near Pueblo, recording thermometers were installed in the pipe line on either side of the river. Here the 22-inch line divides into six 10-inch, 900-foot runs laid on the river bottom. The normal change in gas temperature in crossing the river is about 2° F. throughout the year. The results of a test made in February, 1937, may be of interest. At the time of this test the river water was at 32° F. and was flowing full of ice. The gas temperature dropped from 42° to 40° F. The gas flow was 42,000,000 feet per day and the line pressure at this point was 152 pounds per square inch.

This temperature survey shows that the gas temperature at any given location is relatively uniform. It changes slowly with the season but does not respond appreciably to temporary weather changes. Unless affected by compressor stations or other disturbing influences, the gas temperature is essentially the same as ground temperature at the depth of the center of the pipe line; hence, it is affected by the depth to which the line is laid. The gas temperature varies along the line in accordance with the seasonal atmospheric temperature of the region traversed. Whether the pipe-line temperatures are influenced greatly by the moisture content of the soil has not yet been determined in these tests. It may be expected, however, that regardless of any change in moisture content of the soil, the underground and the pipe-line temperatures will respond alike and continue to maintain equality.

As the formation of gas hydrates is influenced by both temperature and pressure, the need for reliable pipe-line temperature information is apparent. Thermometers placed at intervals of 30 to 40 miles along a line are desirable. In conducting this temperature survey, it was found that the temperatures of the gas measured in thermometer wells placed in the line and temperatures of the pipe registered by thermocouples in contact with the pipe line agreed within the precision of measurement, about ½° F.; hence, any method by which the temperature of the pipe can be measured will

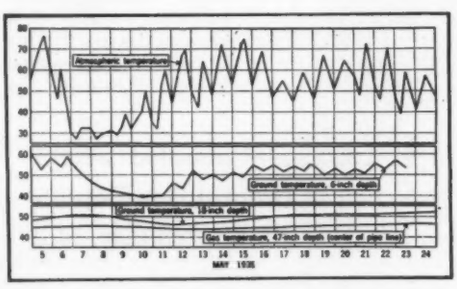

Atmospheric temperature
Ground temperature, 6-inch depth
Ground temperature, 18-inch depth
Gas temperature, 47-inch depth (center of pipe line)
MAY 1936

Fig. 4—Atmospheric, ground, and gas temperature at Black Forest thermometer station

be satisfactory. The gas temperature can be estimated with reasonable accuracy by measuring the ground temperature at a depth corresponding to the center of the pipe line. In some cases this may be easier than measuring the temperature of the pipe or the gas directly.

In measuring underground temperatures the bureau has used thermocouples mounted on wood staffs. A 1½-inch diameter earth auger was used to drill a hole to the desired depth. The thermocouple staff then was placed in the hole and the temperature read after enough time was allowed for temperature equilibrium to become established. In later tests a mercury-in-glass thermometer mounted on the lower end of a staff was used, precaution being taken to read the thermometer quickly after withdrawal from the hole. With proper precaution this provides an inexpensive and convenient means of ascertaining underground temperatures.

Laboratory Data

In conducting the laboratory investigations of gas hydrates, methods and equipment were chosen which would give results directly comparable with the formation of hydrates in pipe lines without sacrificing precision and accuracy. Equipment of other design was used in certain preliminary phases of the work, but the results here reported were obtained with the apparatus illustrated in Figure 5 and described below.

The main body of the apparatus consists of a glass-windowed high-pressure cell having internal dimensions of 1 by 1¼ by 6 inches. The unit is made from a Jerguson, type P, high-pressure, liquid-level gauge. The windows in the gauge are plate glass, approximately three-quarters inch thick, suitable for withstanding high pressure. The apparatus used in this investigation withstood a hydrostatic-pressure test of 2,500 pounds per square inch. This type of cell was considered to be better than one of high-pressure glass tubing, because the plate-glass windows permit the interior to be observed without distortion. Flow of gas through the apparatus is controlled by suitable valves. The cell can be oscillated about a horizontal axis, but usually it is operated in an approximately horizontal position. Connections in both the bottom and the top controlled by suitable valves allow the gas to be bubbled up through water in the cell or to flow across the surface of the water as desired.

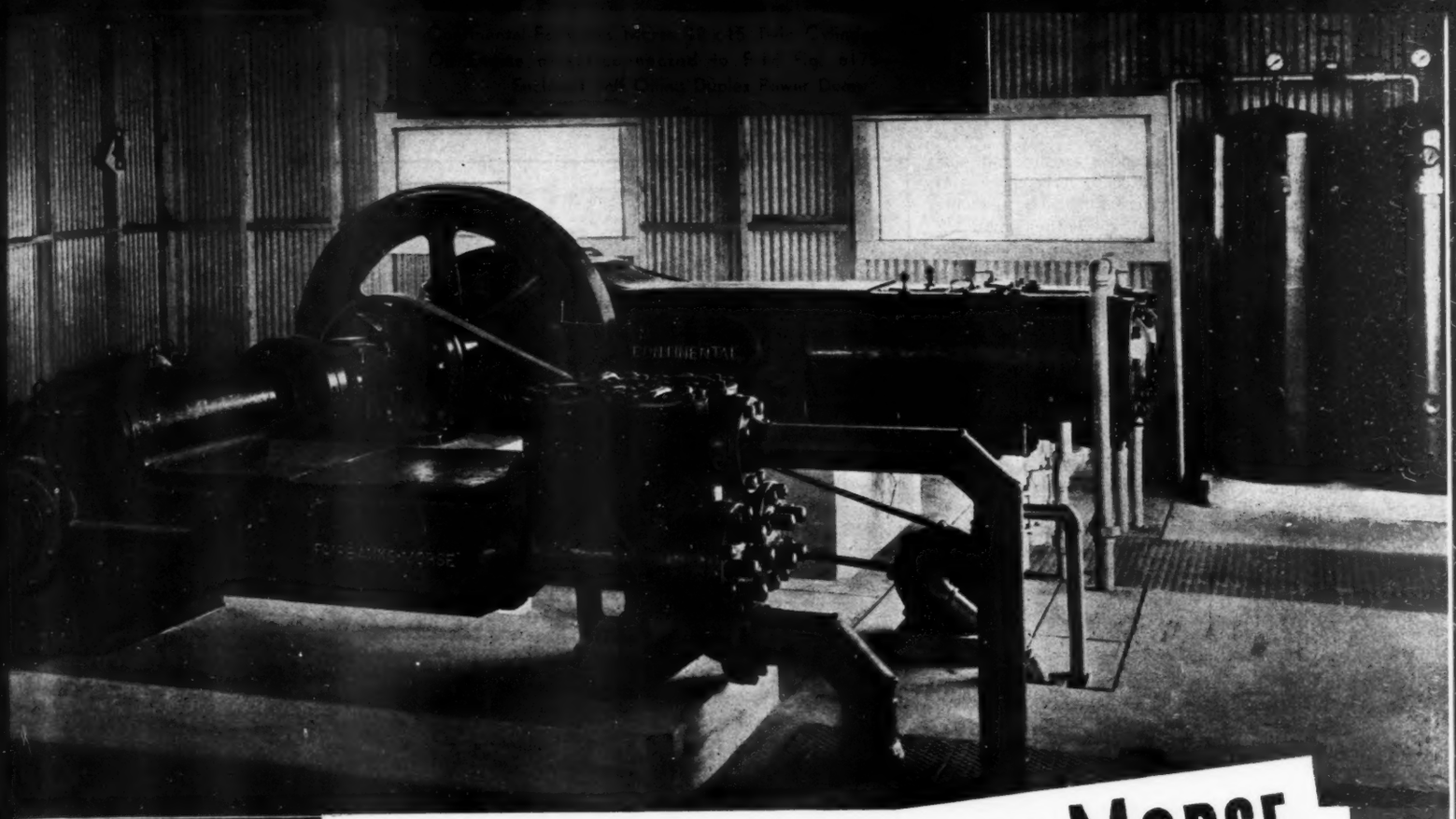
The cell is placed in a thermostated bath equipped with plate-glass windows and a suitable lighting system for visual observation. The temperature of the bath is controlled to plus or minus 0.05° F., and temperatures in the bath and cell are measured to the same accuracy by thermocouples and a high-sensitivity potentiometer. To measure temperatures within the cell, three thermocouples are placed inside—one junction at the bottom and normally in the water, the second in the middle in contact with the water surface, and the third in the gas space in the upper part of the cell. A fourth thermocouple is placed in the bath to determine its temperature, permitting convenient comparison of temperatures within the cell and the bath.

Confirming Hammerschmidt's[1, 2] results, the writers have found that until crystallization has been started it sometimes is difficult to get the hydrates to form even at pressures 300 or 400 pounds per square inch in excess of that at which they will form when crystals are present. Although this behavior has been demonstrated repeatedly, it probably offers no advantage in the operation of pipe lines because the phenomenon is transitory and there is no assurance that the liquid in the line will not become inoculated in time with hydrate. When this occurs, hydrates will form at pressures only slightly higher than those at which they decompose.

A dynamic method is used for determining curves of hydrate decomposition like those shown in Figure 6. At a selected bath temperature the

TABLE 1—ANALYSES OF GASES USED IN OBTAINING CURVES OF FIGURE 6

Constituent—	Ethane A	Propane B	Natural Gases C	Natural Gases D	Natural Gases E
			Per cent by Volume		
CO_2	....	....	0.2	0.2	0.8
N_2 Residue	....	4.22	14.3	7.19	25.0
CH_4	....		75.16	82.50	67.4
C_2H_6	93.6	12.41	5.95	5.99	3.7
C_2H_4	3.8	....	....	....	....
C_3H_8	....	83.37	3.33	3.26	1.9
C_4H_{10} (iso)	....	....	....	.30	....
C_4H_{10} (normal)	....	....	1.06	.49	1.2
C_5H_{12}+	....	....	....	.07	....
Total	100.0	100.0	100.00	100.00	100.0



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apparatus, containing gas under pressure and some liquid water, is manipulated to form crystals of hydrate. This usually is accomplished by reducing the pressure within the cell rapidly thus producing local cooling. After hydrate crystals are observed to be present, the pressure in the apparatus is maintained for a time at a value estimated or known to be higher than the decomposition pressure for the selected temperature. Gas is allowed to flow through the apparatus across the surface of the water until the water freezes over with hydrate. The pressure regulator used to control the pressure in the cell then is manipulated to reduce the pressure slowly. After a trial or two, the decomposition pressure can be estimated within a few pounds; and a careful check is made in this range of pressure. By having only a thin film of hydrate ice on the water surface, it is possible to check the pressure at which the hydrate decomposes within 1 or 2 pounds per square inch.

The depressuring method of determining the hydrate-decomposition curves has been checked by the alternate method of holding the pressure constant and raising the temperature of the bath. Data obtained by this method conform to those obtained by dropping the gas pressure at constant temperature. As reduction in pressure is more readily accomplished, the depressuring method generally is used.

Hydrate Decomposition

Figure 6 shows hydrate-decomposition curves for ethane, propane and two natural gases. In addition, Hammerschmidt's[1, 2] curve for another natural gas is shown for comparison. It will be observed that each natural gas has a distinctive curve. The analyses of the gases used in determining these several curves are shown in Table 1. The purity of the ethane and propane used was not very high, as the analyses show, and caution should be exercised in using the curves for these two gases. They are presented primarily to afford comparison with the hydrate curves of natural gases containing many components. More data must be obtained before spacing of the curves can be correlated definitely with gas composition.

In making the hydrate tests it has been observed that although most of the hydrate decomposes readily when the pressure in the cell is reduced at constant temperature, a small, indefinite amount of hydrate persists for a considerable time, even after the pressure is reduced to atmospheric. This hydrate which fails to decompose either is submerged in the water in the cell or completely covered by a water film. The temperature of the water, as indicated by the thermocouples within the cell, usually is not more than a few tenths of a degree lower than the bath temperature.

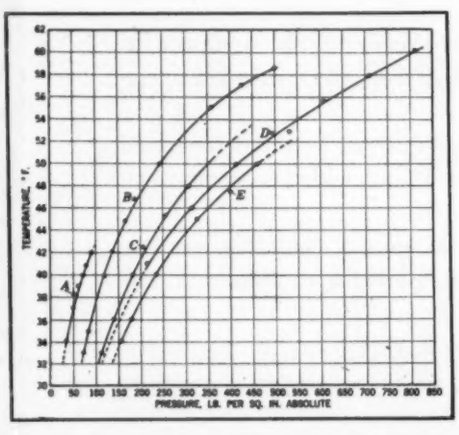

Fig. 6—Curves for decomposition of gas hydrates: A, propane (83.4 per cent pure); B, ethane (93.6 per cent pure); C, natural gas, Canadian River Gas Co.; D, natural gas, Hammerschmidt's curve; E, natural gas, Cliffside field

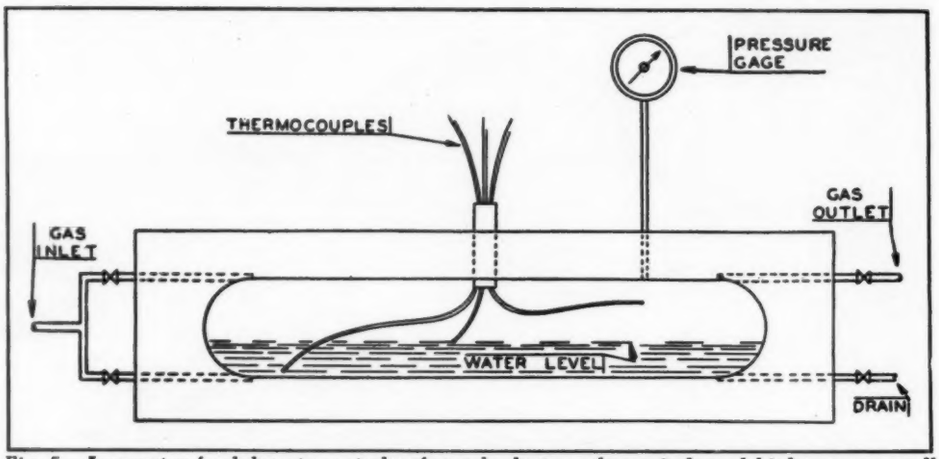

Fig. 5—Apparatus for laboratory study of gas hydrates; glass-windowed high-pressure cell

The hydrate persistence is mentioned as a matter of interest, but no conclusive explanation can be offered at this time. It may be comparable to the persistence of hydrate in pipe lines that have been fully depressed. It is to be noted, however, that so far as the writers have determined, hydrate removed from pipe lines has a temperature of 32° F. or lower, even though it is definitely known that the hydrate was formed in the line at considerably warmer temperatures. It seems likely that as the hydrate in the line starts to decompose it absorbs heat from itself thus lowering its temperature; this reduction in temperature continues until the normal ice temperature is reached, at which time the water released by decomposition of the hydrate is frozen into water ice. This explanation would account for the relative stability of the hydrate mass at a pressure of 1 atmosphere. Further investigation of this phenomenon is contemplated.

In the laboratory experiments the hydrate is observed to accumulate on the surface of the water. As gas is passed over a water surface, hydrates form as a scum over the entire surface; then the formation ceases or at least proceeds very slowly. If the gas is bubbled through the water, the bubble surface is transformed into a film of hydrate. This observation suggests that the formation of hydrate is a surface reaction.

It is of considerable importance to know whether the hydrate reaction will take place in the gas phase. If the reaction is confined to water surfaces, this would not be possible. It is planned to investigate this question more thoroughly.

Remedial Measures

As water is necessary to the formation of gas hydrates, an obvious means of eliminating hydrate formation is to remove all water from the pipe line and then dry all gas that enters the line. If hydrates will form only where liquid water is present, it would be necessary only to dry the gas to a point where its dew point is lower than the temperature in the pipe line. This would not necessarily eliminate all danger of trouble from freezing in regulators because the local cooling resulting from expansion may reduce the gas to a temperature lower than the dew point of the gas, thus condensing water and permitting hydrates to form.

Several gas companies are removing the water from the gas at their initial compressor stations. An absorption system using refrigerated calcium chloride brine commonly is used. In two recent installations diethylene glycol is employed. Glycerin has been used, but reports indicate that some difficulty was encountered due to decomposition or oxidation of the glycerin to a less hygroscopic material.

In systems using a liquid for absorption of water vapor the solution is circulated over a bubble tower through which the gas passes. The solution is regenerated by diverting part of the circulating liquid to an evaporator where it is concentrated and then is reintroduced into the cycle; or as in the case of diethylene glycol, the entire circulating solution is passed through a still where the water is removed by distillation.

Water Removal

Other processes of removing water from gases employ silica gel, activated alumina, and charcoal. These are adsorptive materials and tend to remove gasoline vapors as well as water vapor. As the adsorptive materials must be regenerated at intervals, processes using them are intermittent, and it is necessary to have multiple-unit installations so some units can be used for adsorption while others are being regenerated.

Many gas-transmission lines are operated without removing water from the gas, except by condensation in the pipe line. Such lines are confronted with the possibility that hydrates will accumulate in the line if the temperature and pressure are conducive to their formation. When freezing occurs, it is necessary to employ some means for relieving the freeze-up. A number of methods are in common use. As the formation of hydrates is similar to the freezing of ice, some means of heating the line naturally suggests itself. To do this, the line is uncovered and heat applied. Sometimes fires are built in the trench using combustible materials that are readily available. This method is effective if the freeze can be located exactly and the heat applied at the point of freezing. Frequently, however, the freeze-up is so complete that only a small flow of gas is maintained; hence, a relatively small amount of heat is carried to the point of plugging.

Another method commonly used is to put alcohol into the line with the hope that it will be carried to the point of plugging where it will decompose the hydrate. This method also requires that the plug be located fairly exactly and depends upon a sufficient gas flow to carry the alcohol to the plug. A third method is to lower the pressure in the section of line which contains the freeze-up. During the reduction in pressure the hydrate decomposes, at least partly, so the plug is broken. Although all these methods are effective to some extent, the depressuring method seems to offer the greatest promise of success where its use is practicable and the temperature of the pipe line is above 32° F.

The depressuring method was tried with excellent results following a freeze-up in January,

1936, in the Colorado Springs 8-inch lateral off the Amarillo-Denver line. In this case, the pressure in the lateral was lowered by closing the gate at the main line and allowing the city demand to reduce the pressure. As soon as the pressure in the lateral reached 100 pounds per square inch, the lateral gate at the main line was partly opened and manually operated to keep the pressure from dropping further. The line was operated under these conditions for a period of about 48 hours. Full pressure then was restored to the line. Upon resumption of normal operation, the plug was observed to be entirely gone; in fact, the pressure-drop record between the main line and the city-border station showed that the plug had been relieved considerably by the time the pressure reached 125 pounds per square inch. The exact temperature in the lateral was not known, but it was estimated to be about 37° F. Referring to the curve for the Canadian River gas, which supplies this line (Figure 6), it will be observed that at 37° decomposition takes place at a pressure of 150 pounds per square inch absolute; and the decomposition of the plug at 125 pounds per square inch gauge would be expected. . . .

Although the bureau's study is far from complete and many questions are yet to be investigated, the information collected seems to justify a few suggestions regarding operating methods to avoid freeze-ups due to hydrate formation. These are enumerated below:

1. Where feasible and economically practicable, remove water from the gas to a point where it will not condense in the pipe line.

2. Where it is impracticable to dry the gas, install means of checking the gas temperatures at intervals along the line.

3. Keep a check on the gas pressures in the line at corresponding points.

4. Determine or estimate the hydrate formation characteristics of the gas being transported, and in so far as possible keep the pressure of the line under that at which the hydrates will form. If it is necessary to operate in the region of temperature and pressures where hydrates form, operate the line at conditions favorable to decomposition at least part of the time and remove the water released upon hydrate decomposition from the line.

5. Recording pressure gauges and recording thermometers placed at intervals along the line furnish desirable operating information. If the pressure record indicates abnormal pressure fluctuations the presence of water or hydrate in the line may be suspected and remedial measures used to avoid a serious stoppage of the line.

Future Program of the Bureau

Many questions concerning gas hydrates remain to be answered. The bureau expects to continue this investigation, with the aid of the Natural Gas Department of the American Gas Association, in an endeavor to clear up these questions. The helpful cooperation of the industry in the work that has been done is highly appreciated, and continued cooperation in furnishing information that will assist in obtaining practical solutions of the various problems is solicited.

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Increasing Flow of Small Producing Gas Wells

By S. W. MEALS
Carnegie Natural Gas Co., Pittsburgh, Pa.

This subject may be of very little interest to a representative from the far West or Southwest, or your own western Kansas. We read of individual wells in these sections capable of producing more gas in a day than one thousand of our old wells in the East. However, the subject is pertinent to we operators who secure our supply from the "White Sand" formations in the Appalachian fields. We are compelled to depend on these small wells, in fact they are the backbone of our business. There are over 32,000 shallow sand wells in Pennsylvania and West Virginia with an average daily production of approximately 30,000 feet per well.

It is true there was a time when we hesitated about saving a million-foot well and often they were not saved if it required too great an expenditure for pipe lines to reach a market. Today we have an entirely different situation. We are drilling in territory where we know the best we can expect is about 200,000 feet per day and we even save some wells that will feed only 10,000 feet into the line. . . .

***A. G. A.*—Presented before meeting of Natural Gas Department, May 12, Kansas City, Mo.**

My first recommendation or suggestion is that more care be taken in properly drilling, casing or cementing new wells to prevent water and mud, "the enemy of gas," from penetrating the producing formation. Mud is all right in its place, but its place is outside the casing as the right kind of mud is a splendid pipe protection. The setting and screwing up of casing is an important factor in the life and output of a well. It is better to spend more in this manner at the time the well is drilled in than later to have a greater expenditure to keep the well alive. You know it requires very little mud and water to seal off the sand pores. . . .

When the rotary method is used in drilling it seems no trick to mud off water, oil or large volumes of gas. It is not so easy in drilling with cable tools. We recently had an experience in cementing out water, the results of which may be of interest to you. The 8-inch casing had been cemented through the Pittsburgh vein of coal. In drilling at 500 feet below the coal, a streak of White Sand was encountered with a flow of fresh water in such volume it could not be lowered by bailing. The water head was about 500 feet or the water filled to a height 500 feet in the hole. We were not ready to case, so decided to try cementing. First we injected additional water into the hole to see if it would seek its level. When we found the sand would take water, we dumped a thin mixture of neat cement in to the bottom of the hole. Gradually the cement mixture was increased and the cement and water injections continued until the face of the water sand became entirely sealed. Water was then filled to the top of the well. This water was allowed to stand in the hole over a week-end and was then bailed out. When the cement plug was drilled out, it was found the job was perfect with all water cemented in the sand. Since then we have cemented a number of water sands in the same manner, shutting out the water and in so doing saved a string of casing.

You will note that I have not mentioned tubing. If the casing is set properly it is best to leave the tubing out, unless the well makes sufficient water to require the well to be pumped. If the well or sand makes water, it is then necessary to have sufficient pocket below the sand to permit the water to drain out; otherwise it is best not to have the well drilled through the producing formation, especially if there is a slate formation directly underneath the producing sand. . . .

When the well is not tubed it is inexpensive to operate one of the many devices now on the market for washing or scrubbing the face of the sand.

A light shot of solidified nitroglycerin or dynamite often gives good results.

We have used some solvent to good effect. One hundred pounds of sulfuric acid dumped into the sand in a bailer and about 60 pounds of caustic soda dissolved in 60 gallons of water, poured in with the acid, will create plenty of heat as well as have a scrubbing effect on the face of the sand, and in many cases has increased the gas output.

If the producing formation carries 18 to 20 per cent lime, a treatment of hydrochloric acid may give surprising results.

Our latest "wrinkle," and the one that has given us the largest increase at the lowest cost, is the use of caustic soda and aluminum slugs or pellets. One hundred pounds of flaked caustic soda and 5 pounds of 5 per cent aluminum shavings, pellets or small slugs with 1 to 1½ bbls. of water (salt water is much better than fresh water) poured into the well will create a temperature of 250° F. and the action of the caustic soda on the aluminum has a scrubbing effect. This should be left in the well overnight and then the well bailed out and the sand formation washed. The caustic soda can be dissolved in the water and dumped in the well by means of the bailer, or simply poured in, and the aluminum slugs dropped in. (We trade steel scrap to the junk buyers for the old aluminum pots, etc., and make our own shavings or slugs.)

Old wells are helped by giving them a rest at times; shutting in to build up the rock pressure enables the well to clean the sand pores.

Injecting or storing gas in the sand seems to open up clogged sand pores and has been beneficial in increasing the gas output.

The life of a well and the ability to produce largely depends upon the conditions of the reservoir from which the well is producing. We have wells that have been producing for more than 30 years, and we have had some that were abandoned the year they were drilled. Some of our shallow sands are long lived. Several weeks ago I was in Wirt County, West Virginia, on the Burning Springs anticline, where I saw a gas well that was drilled in 1860. It is still producing sufficient gas to operate the oil lease and supply several dwelling houses on the lease, thus testifying to what may be expected from some of our shallow sands where proper care and attention is given to keeping sand "face" free from "foreign" matter.

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GENERAL SPECIFICATIONS

O. D. Dia.	Length	Bore	D. P. Used With	Approx. Wt.
4⅝"	20' 24' 30'	1⅞"	3½"	831 lbs. 1,022 lbs. 1,308 lbs.
6¼"	20' 24' 30' 40'* 50'	2 11/16"	4½"	1,375 lbs. 1,708 lbs. 2,203 lbs. 3,039 lbs. 3,870 lbs.
7"	20' 24' 30' 40'* 50'*	3 11/16"	5 1/16"	1,662 lbs. 2,035 lbs. 2,595 lbs. 3,528 lbs. 5,561 lbs.
8"	20' 24' 30' 40'* 50'	4½"	6⅝"	2,108 lbs. 2,576 lbs. 3,277 lbs. 4,445 lbs. 5,613 lbs.
9"	20' 24' 30' 40'* 50'*	4½"	6⅝"	2,638 lbs. 3,278 lbs. 4,261 lbs. 5,883 lbs. 7,505 lbs.

* Furnished on order from mill.

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East Texas Plants Add Butane Equipment to Meet Increasing Demand

By MITCHELL TUCKER

The advent and developments in the polymerization processes during the last two years has greatly increased the demand for the butane and propane gases. This need was at first supplied from refinery gases only, but its influence is now being keenly felt in the natural gasoline industry.

It has been reliably reported that the possible potential supply of polymerized gasoline available from the residue gas of several hundred natural gasoline plants exceeds the total natural gasoline now being compressed or absorbed from gas in the plant operations. This estimate, of course, includes the butane and propane removed from the finished gasoline in the stabilizing operations, which heretofore has largely been wasted.

The best present-day example of this interesting and possibly far-reaching development is seen in the East Texas field, where nine of the 18 natural gasoline plants are now either equipped, or are installing facilities, to process and maintain these lighter products in a liquid form. There are two reasons why this pioneer step has been taken in the East Texas field. First, the casinghead gas from the highly saturated Woodbine sand there is very rich in butane and propane content, and possibly represents the world's greatest reserve of these products; and second, elaborate facilities have been installed to gather and transport these volatile liquids to a polymerization plant where they can be manufactured into finished gasolines.

The initial step in this East Texas development was made when Humble Oil & Refining Co. announced plans for the construction of a new polymerization plant at its Baytown refinery on the Gulf Coast, thereby establishing a demand for the butane and propane. The East Texas field some 300 miles to the north offered the best supply of these products, and the next step was to provide an outlet or connection between the supply and demand.

It was recognized that one pipe line must be set aside for the movement of these gasoline mixtures only, and preferably there should be no intermediate booster stations where evaporation would be encouraged. Accordingly, Humble Pipe Line Co. transformed one of its 8-inch oil lines from the East Texas field to Baytown into a natural gasoline carrier.

The entire production of the plants served by this gathering system, including both natural gasoline and butane mixtures, at an average vapor pressure of about 41 pounds, is delivered to a stabilizing plant at Baytown, from which the butane mixtures are separated and delivered to Humble for polymerization, and the remaining natural gasoline (at vapor pressure of about 18 to 20 pounds) is delivered to Hanlon-Buchanan for their export trade.

To supply this newly created demand, Humble enlarged its London 10,000,000-foot compression and absorption plant to 16,000,000 capacity, and its Kilgore 5,000,000-foot capacity plant of the same type to 7,000,000-foot capacity. Facilities were added at London to recover propanes, butanes, and related gases by the refrigerant method. Residue gases from the Kilgore plant is run to London for this cutting.

Hanlon-Buchanan, Inc., enlarged its 15,000,000-foot absorption plant at Gladewater to recover these gases by the same process. The company was followed by the Gregg-Tex Gasoline Co., which added fractionating equipment to its 15,000,000-foot compression plant northeast of Gladewater for the recovery of butane and lighter gases. The Sabine Valley Gasoline Co. 11,000,000-foot compression plant at Kilgore was next to install similar equipment.

Humble then added to its system by the purchase of General American Oil Co. 10,000,000-foot compression plant and all connections at Overton. Residue gases from this plant are also run to Kilgore for a second processing, from which the lighter gases will be retained in a liquid form for delivery to the gasoline line.

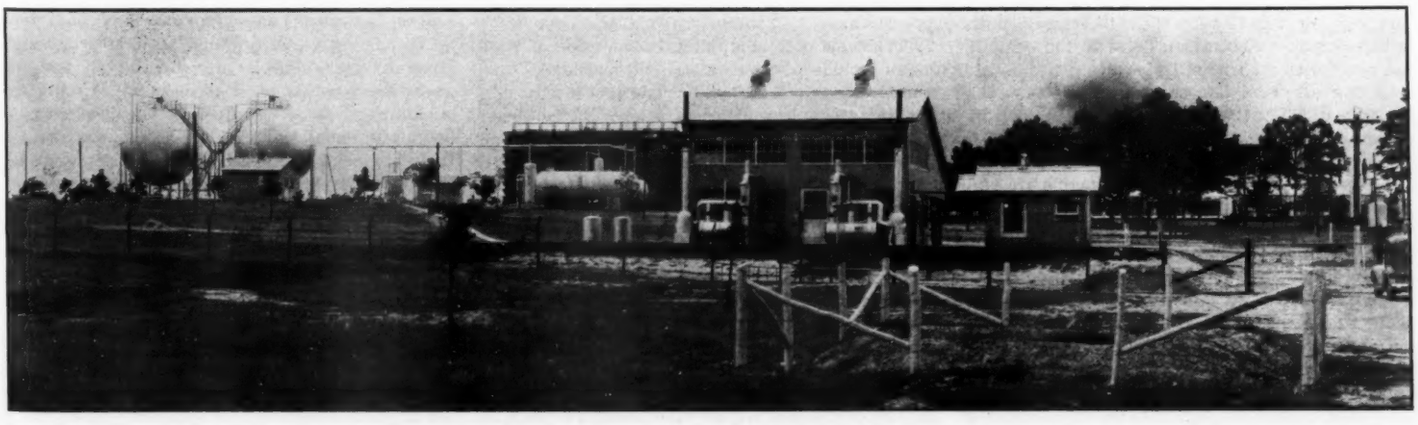
Parade Gasoline Co. has just recently completed the installation of what it terms its "Butane Recovery Systems," employing the refigerant method, at its 11,000,000-foot compression and absorption plant at Joinerville. At the present time Arkansas Fuel Oil Co. is installing high-pressure absorption equipment for this same purpose at its 8,500,000-foot absorption plant at Greggton.

Lisbon Gasoline Co. 6,000,000-foot Joinerville plant recently installed a high-pressure absorption butane recovery system, although at present Lisbon is not tied into the gathering and transportation system.

The recovery system at the Lisbon plant differs from all others in that it is designed to recover the butane separately from the remaining natural gas, while all other recovery systems are designed to liquefy all available gases in a mixture for transportation and later separation.

The Lisbon plant was formerly what might be called a fractionating plant, and was transformed into a high-pressure absorption plant by the addition of more heat exchanger equipment, another still, and an increase from 150 to 1,000 b.hp. capacity. The additional steam was necessary in both the fractionating and distillating units, and the high-pressure absorber. At the first tower the gas is depropanized, then run to the second fractionating or absorber tower, where the butane cut is taken off the top, and the gasoline mixtures below. No steps are made to stabilize the propane gases here, and the butane and gasoline mixtures are sold to Warren Petroleum Co. in their respective forms.

Arkansas Fuel Oil Co. is to employ a high-pressure absorption method differing from others in some respects. Its butane recovery system may be considered separate and distinct from the remainder of the plant. Residue gas from the stabilizer and from the residue system is to be boosted by three newly installed compressors to about 250 pounds, thence to the high-pressure absorber, using more oil at this pressure than in the original process and going one step further in desaturating



London terminus of Humble Pipe Line Co.'s line for transportation of gasoline and butane-propane mixtures from East Texas to Baytown

the gas. After separating the absorbing oil from the butane mixtures by a separate distillation unit, the gasoline is run to a depropanizer in order to stabilize the product to a point where it can be handled by the present facilities. New spheroids are being installed, together with all other necessary equipment, to make the processing and storage of the lighter gasoline possible.

Parade Gasoline Co., refrigerant recovery system is quite similar to that employed in the Humble and Hanlon-Buchanan plants. In this process all 26-pound gasoline and a large part of the butanes are taken off on the first stage absorption. Gases from this process is then directed to the second stage propane refrigerant unit (low-pressure). The low temperature here is provided by the propane gases themselves as they are released in the propane feeder column, where the gas expands, chills, and goes one step farther in its desaturation. The heavier propanes and a cleaner recovery of butane is obtained by this process.

No actual record is available of the total increased yield from the plants now employing the various types of butane recovery systems, but it is known that one plant which formerly made from 3 to 3¼ gallons of 26-70 gasoline per 1,000 feet of gas before installation of the system is now obtaining about 7½ gallons of natural gasoline and butane-propane mixtures per 1,000 feet. In other words, the yield per 1,000 feet is practically doubled if the butane and lighter gases are recovered. There is probably no such thing as a typical fractional analysis of East Texas gas, due to varying conditions throughout this extensive field, but the following gives a general idea of the casinghead gas saturation from samples taken in the Joinerville area:

	Per cent by volume	
	Sample No. 1	Sample No. 2
Methane	51.78	53.04
Ethane	12.05	11.25
Propane	19.16	18.65
Iso-Butane	3.37	3.30
N-Butane	7.99	7.87
Iso-Pentane	2.41	2.35
N-Pentane	1.49	1.69
Hexanes plus	1.75	1.85

Hanlon-Buchanan's gathering system now totals about 35 miles of 4, 6 and 8-inch lines. Gasoline mixtures collected by this system are delivered into two 2,500-bbl. spherical receiving tanks, after first passing through surge or settling tanks at the London terminus. As before stated, the vapor pressure of this mixture averages about 41 pounds, and a sufficient range of back pressure is maintained on the entire system at all times to insure that the products handled will be maintained in a liquefied form. Liquid meters, which automatically correct for temperature and pressure, are used at the spherical tanks.

The one and only pump station on the line is set about 100 yards south of the field receiving tanks. It consists of two 300-hp. diesel engines, converted from oil to gas, operating at 400 r.p.m., and driving 9-to-1 gear speed-increasing units, which impart a 3,600-r.p.m. drive to the centrifugal pumps. One such unit operates continuously, with the other serving as a standby. A suction pressure of about 100 pounds is maintained on the spherical tanks, and the liquid is discharged from the high-speed pump at 700 pounds pressure. Daily line capacity from this one station at this pressure is about 9,000 bbls.

The mixture is received at a stabilizing assembly at Baytown, consisting of five 8 by 96-foot stabilizers, where it is separated and divided. All liquid that separates out at a vapor pressure of about 20 pounds or above is retained by Humble for delivery to its Baytown refinery, where the lighter butanes and pentanes will be polymerized into high-octane gasoline when that new unit is completed. Hanlon-Buchanan takes the remaining cut to its loading facilities at Baytown for export.

THREE INDUSTRIES

(Continued from Page 69)

to give the added mechanical strength required incidental to the greater peak pressures present with high compression ratio are not of serious disadvantage. On the other extreme are short range airplanes for which maximum speed and rate of climb are of major importance, with specific fuel consumption being secondary. In this case a high degree of supercharge, without excessively high compression ratio, will be used and a decided reduction in engine weight per horsepower will be possible. For intermediate range airplanes, any desired compromise between these extremes is possible to provide the power required for take-off and to maintain reasonable speed during climb, with fuel consumption reasonably low during cruising.

"The advantages of 100-octane fuel are so marked there is little doubt it will be adopted for general air line use in the not too distant future. However, for the benefit of operators who today are most interested in reduction of engine corrosion, the use of commercial 87-octane fuel containing not more than one-half ml. of tetraethyl lead per gallon deserves consideration. This fuel has been made possible by the 100-octane fuel development program, and it will probably cost about 1 cent per gallon less than 100-octane fuel. This small concentration of lead causes almost negligible corrosion, but if commercial 87-octane fuel without any lead is desired, it will be available at a cost of about 1 cent per gallon above 100-octane fuel.

"There is every reason to believe quality of fuel will continue to improve, just as in the past. One hundred-octane fuel is merely a stepping stone. As better fuels become available, engines will be designed to take advantage of them; and conversely, as newly designed engines are found to give improved performance with higher anti-knock fuels, methods of producing the better fuels will be developed. Most of the past experience with 100-octane fuel has been obtained with iso-octane blends. The fuel industry is making rapid progress in developing new methods for producing iso-octane at lower cost and with large potential sources of supply. Methods have just been developed which give indication of making available large quantities of fuel better than 100 octane without lead, and considerably better with added lead, at moderate cost. Much, of course, still remains to be accomplished along those lines, since development of fuels better than commercial 87 octane is only a little over two years old."

Research in lubricants for airplane engines has lagged somewhat behind that of fuels, with the result today one of the major problems of the aviation industry is to develop oils to take further advantage of the new fuels. The time which an airplane engine can run without overhauls and replacements is an important factor of economy in operation.

Problems now occupying the attention of engineers include piston-ring sticking and sludge formation in engines, carbon formation, viscosity, and cooling effect. In some cases, science has not been able to develop oils which are entirely satisfactory in overcoming these problems, in others the difficulty is engineers have been unable to perfect laboratory tests which give the same results as tests in actual operation.

Writing in "Shell Aviation News," a British publication, E. L. Bass says:

"With the ever-increasing demands of the air transport industry for higher speeds, involving greater powers from smaller engines and longer periods between overhauls, the problem of lubrication becomes more and more difficult, and it is only by continuous engine experimental work it is possible for lubricating oils to keep abreast of current requirements of engines. From the point of view of convenience some engine manufacturers and air line operators issue specifications for lubricating oils for their engines. There are many apparent advantages to be gained from this policy, but it suffers from the fundamental defect that, owing to the difficulty of devising any laboratory test which will determine the necessary performance characteristics of an oil, it is virtually impossible to produce a specification which will insure that only the best oils are selected and that oils of excellent performance are not excluded."

Piston-ring sticking is difficult to solve by laboratory tests. Mr. Bass points out that primarily it is controlled by engine design, but such factors as the materials used for parts of the engine, lubricating oil consumption and rate of circulation of oil behind the piston rings, and quality of fuel play an important part. In the presence of these confusing factors it has been impossible to develop laboratory means of determining the piston-ring sticking qualities of an oil. "It is obvious," Mr. Bass says, "the development of a satisfactory test method for examination of this important property is the first and most essential step in the direction of the production of oils to meet modern requirements."

In studying sludge formation in engines, science has been unable to devise laboratory tests which give results comparable to those in actual engine tests. Mr. Bass declares this is because laboratory tests do not take into account the nature of the sludge in the lubricating oil, or the difference between oils in respect of their ability to retain sludge in solution or suspension and thus the tendency for the sludge to be thrown out onto important engine parts. It is inevitable, even with the most perfectly built trunk-piston type engine working under the most ideal conditions, the lubricating oil in it will deteriorate owing to contamination by partially oxidized products from the oil and fuel which are swept down from the cylinder walls. Less perfect engines with higher heat losses and greater piston and cylinder temperatures must obviously produce more rapid deterioration of the lubricating oil.

The importance of sludge formation is that it affects not only the amount of cleaning of engine parts during overhaul but also choking of oil control rings and relief holes controlling oil consumption and obstruction of oil-ways and holes essential for supply of oil to certain working parts.

Carbon formation, frequently studied in connection with sludge formation, is really another problem, and from some points of view less important. Various authorities agree the formation of carbon on piston ring tops and combustion chamber walls is not generally the cause of any great difficulty in a modern engine. Here again, laboratory tests are unreliable, and the best method of testing for carbon formation is measuring the formation in engines run under controlled conditions.

Discussing viscosity, Mr. Bass points out that, generally speaking, oils of comparatively low viscosity are superior to oils of high viscosity in ring-sticking and carbonizing properties, despite many operators demand oils of increasing viscosity for their engines because with these oils it is easier to obtain low consumption. "The anomaly, of course, is that at the same time engine designers continually demand oils of improved ring-sticking properties to enable their products to run for longer periods between overhauls, thereby introducing a two-fold problem to the oil producer when they also demand oils of increased viscosity. From the oil production point of view the actual viscosity requirements are easiest to meet, but there are considerable difficulties in increasing viscosity without impairing some of the most important characteristics of the oil."

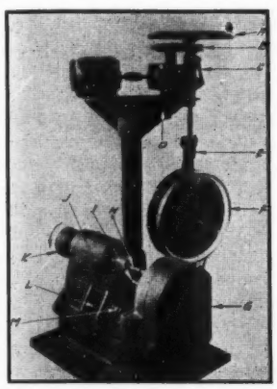
QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

S.A.E. Machine for Friction Tests of E.P. Lubricating Oils

I shall be grateful if you will give me information covering the construction and operation of the S.A.E. machine for testing extreme pressure lubricants. Has this become standard in thre United States?—J. S. B.

This machine is being developed by the S.A.E. Lubricants Research Committee and has not been released by the committee for general sale. Approximately 35 have been built for members of the S.A.E. committee and others interested in the development of extreme pressure and hypoid lubricants. The machines have been built by the Highway Trailer Co., at Edgerton, Wis., but the purchase order must be approved by the executive committee of the S.A.E. Lubricants Research Committee, before the Highway Trailer Co. will actually build a machine. Anyone interested in the development of extreme-pressure or hypoid lubricants will have no difficulty in securing an approval on their purchase order. This arrangement was made primarily to avoid having the machines fall into the hands of sales and advertising departments and commercial testing laboratories, who may not understand the problem, before the machine was approved and accepted as a standard laboratory testing method.



The committee hopes to determine if individual machines, operated in different laboratories, will yield results close enough for identification and specification purposes. Also, to select the most satisfactory test conditions for determining the load-carrying properties of automotive rear axle lubricants.

The experimental machine is illustrated. The method for making a test is very briefly outlined. Standard Timken test cups are used; the upper cup is mounted on the drive shaft test cup split bushing. The cups should be firmly clamped in position. Place oil box in trunnion and fill with test oil to the center line of the shaft. The shaft should be rotated by hand, the oil box bearings and the Timken test cups should be well covered with the test lubricant. The oil box is positioned by sliding the whole assembly in place. Care must be exercised in properly locating knife edges on the loading lever. The lower test cup is centered with respect to the upper test cup and the assembly locked in position by the locating key and by the nut at L. By means of the hand crank wheel A, apply an initial load of 5 to 10 pounds and engage screw shaft C in screw shaft key-way. Rotate machine several revolutions by hand to insure that test cups are thoroughly covered with the test lubricant and that the machine is properly adjusted. Operate machine for 30 seconds with the initial load of 5 to 10 pounds. Apply load by closing loading motor switch. Observe carefully the behavior of the Timken test cups and stop loading motor the instant scoring occurs, or when the load on the test cups reaches 580 pounds, scale reading, the capacity of the machine. The main driving motor should be stopped as quickly as possible to avoid damage to the machine.

The last lot of machines were quoted in the neighborhood of $625, which price did not include the motor or drive. Machines manufactured in lots of one or two would, of course, be quoted at a somewhat higher price.

Reference: Report of Committee for Correlating Extreme Pressure Lubricant Cooperative Test Program Data, S.A.E. Meeting, June, 1936.

Significance of Aniline Point of Petroleum Liquids

Will you kindly explain what is the value of the aniline point determination?—C. H. W.

A good explanation of the purpose of the aniline point determination has been given by D. A. Howes, in the Journal of the Institution of Petroleum Technologists:

"It was Chavanne and Simon who first observed that the presence of aromatic hydrocarbons decreased the critical solution temperature of a hydrocarbon mixture in aniline, and, moreover, that the depression of this temperature was directly proportional to the weight of aromatics present. Chavanne and Simon observed that of the four main classes of hydrocarbons, the paraffins have the highest critical solution temperatures and aromatics the lowest, naphthenes and olefines occupying intermediate positions. Accordingly they suggested the determination of critical solution temperatures in aniline for the determination of both aromatics and naphthenes in hydrocarbon mixtures.

"It was left to Tizard and Marshall to put the proposed method on a sound experimental basis and in their work they dispensed with the somewhat elaborate and time-consuming critical solution temperature determinations of Chavanne and Simon and substituted for these measurements of "Aniline Points," which may be defined as temperatures at which equal volumes of hydrocarbon mixtures and aniline are completely miscible. By this modification the method became applicable to rapid working and did not, as a result, lose any of its accuracy or reliability. Tizard and Marshall found that benzene, toluene and ortho-xylene, in equal proportions by weight, produced identical depressions of aniline point within the limits of experimental error, but that meta and para xylenes lowered aniline points rather less than the same weight of benzene or toluene."

References: Howes, J. Inst. Pet. Tech., 16, 54, 1930; Chavanne and Simon, Compt. Rend., 168, 111, 1324, 1919; 169, 185, 285, 1919; Tizard and Marshall, J. Soc. Chem. Ind., 40, 20T, 1921.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Glycerol or Glycerin

Use—Solvent, low freezing preparations, extracting, antifreeze for low temperature lubrication.

Form—Colorless to pale yellow liquid.
Formula—$(CH_2OH)_2$ CHOH or $C_3H_5(OH)_3$.
Specific gravity—1.2604.
Melting point—65° F.
Boiling point—554° F.

LIMITATIONS

Grade B is the kind commonly used in the petroleum industry.

Color and odor, max.	slight
Specific gravity, min. at 60° F.	1.2620
Acidity or alkalinity—50 mil. in pure water shall not require more than 0.3 ml. N/CH1 or exceed 0.3 ml. N/NaOH for neutralization.	
Ash, max. per cent	0.10
Chlorides as Cl, max. per cent*	0.01

*Water solution from the ash.

Reference: Federal Stand. Stock Catalog, O-G-491.

Sulfur Dioxide Refining Plants in the United States

It is my understanding that only a small part of the gasoline and kerosene produced is now acid-treated but that some of the finest quality products are SO_2 treated. Could you furnish a list of SO_2 treating plants in the United States?—S. A. F.

The latest reports, March, 1937, available indicate that the Edeleanu sulfur dioxide process is being used in nine refineries in the United States. The details are given in the table:

EDELEANU PLANTS IN THE UNITED STATES

Company—	Capacity per day (bbls.)	Products
Tide Water Associated Oil Co.:		
Avon, Calif.	3,200	kerosene, naphthas, lube-turbine and motor oils.
Standard Oil Co. of Calif.:		
Richmond, Calif.	3,000	kerosene, naphthas, transformer-lube-turbine and medicinal oils.
Union Oil Co. of Calif.:		
Wilmington, Calif.	7,000	kerosene and naphthas.
Oleum, Calif. (revamped 1934 as benzol SO_2 plant)	1,500	spray-transformer and motor oils.
Shell Oil Co. of Calif.:		
Martinez, Calif.	2,000	naphthas and kerosene.
Martinez, Calif.	1,750	turbine-motor-transformer and lube oils.
Wilmington, Calif.	5,000	naphthas and kerosene.
Tide Water Associated Oil Co.:		
Bayonne, N. J.	1,750	turbine-motor and lube oils.
The Texas Co.:		
Port Arthur, Tex.	1,000	kerosene, turbine and lube oils.
Humble Oil & Ref. Co.:		
Baytown, Tex. (revamped 1935 for treating naphtha at —60° F.)	6,000	kerosene and naphthas.

The Edeleanu process is widely used in many foreign countries, there are 29 plants outside of the United States.

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Weight of a Column of Gas

Is the pressure exerted by a column of gas in a 6,000-foot well appreciable? In other words, what will a column of 0.684 gravity gas 6,000 feet high weigh?—E. D. Y.

In Bureau of Mines R.I. 3338, April, 1937, "Estimate of Natural-Gas Reserves from the Layton, Oolitic and Oswego-Prue Horizons in the Oklahoma City Oil Field" by R. E. Heithecker and example of this kind is given under the subtitle "Reservoir Pressure," page 7.

"The following example illustrates the method of calculating the weight of a column of gas in a well and the reservoir pressure from the wellhead pressure, gravity of gas, depth of well, and temperature in the reservoir. Calculation of the reservoir pressure is simplified by use of tables given by Rawlins and Schellhardt in Monograph 7, Bureau of Mines, 1936, Appendix 6, pp. 166-174, 'Back Pressure Data on Natural-Gas Wells and Their Application to Production Practices.' However, the calculation may be made using the formula:

$$\left(\frac{P_s}{1 + P_s b}\right) = \left(\frac{P_i}{1 + P_i b}\right)\left(\frac{GL}{e^{53.34\,T}}\right)$$

"The following data are used:

Wellhead pressures, lbs. per square inch gauge 1,000 $P_i = 1{,}015$.

Depth of well, feet 6,100 $L = 6{,}100$.

Gravity of gas 0.684 $G = 0.684$.

Temperature reservoir, 126° F.; average temperature considered as 100° F.

Absolute average temperature $100 + 460$ $T = 560$.

Deviation coefficient expressed as decimal, $b = 0.000104$.

Substituting numerical values in the formula:

$$\left(\frac{P_s}{1 + P_s\,0.000104}\right) = \left(\frac{1015}{1 + 1015 + 0.000104}\right)\left(\frac{0.684 \times 6100}{2.71828^{53.34 \times 560}}\right)$$

$$\frac{P_s}{1 + P_s\,0.000104} = 1056$$

$P_s = 1056\ (1 + P_s\,0.000104)$

$P_s = 1056 + 0.1098\ P_s$

$P_s = 1186$, representing the pressure in the reservoir in pounds per square inch absolute.

The weight of the column of gas, 1186 — 1015 = 171 pounds per square inch."

Explosive and Other Properties of Hydrogen Sulfide

Does hydrogen sulfide burn and is it explosive when mixed with air? What temperature is required to liquefy it and why is it called an acid?—J. W.

Hydrogen sulfide is slightly heavier than air, specific gravity 1.1906, is inflammable, burning with a blue flame. When it burns it unites with the oxygen of the air to form sulfide dioxide. It is completely converted to water and sulfur dioxide when there are two volumes of hydrogen sulfide and three volumes of oxygen. When these conditions exist and an electric spark is introduced into the mixture a violent explosion results.

Hydrogen sulfide may be liquefied at ordinary temperatures under a pressure of 250 pounds. The liquid boils at minus 62 Centigrade and becomes solid at minus 85 Centigrade. The gas is soluble in cold water in the ratio of four volumes of the gas to one of water. The water solution has an acid action when tested with litmus paper, which indicates the acid character of the gas.

Correlation of St. Peter and "Wilcox" Sands

In contemplating the core drilling of the St. Peter sand in the Middle West, in hope of finding if it can be correlated with the Wilcox of the Mid-Continent, I find myself without sufficient information about the latter to make a comparison. There must be in existence descriptions and photographs of cores of the Wilcox sand. Will you tell me wherein I can find information on paleontology, bulletins of geological societies or other literature on this subject?—S. W. T., Jr.

You are undertaking quite a task in attempting to correlate St. Peter sand and the Pre-Chattanooga "Wilcox" sand of the Mid-Continent. As you probably know there is another Wilcox sand named after its outcrop in Wilcox County, Alabama. This Wilcox sand is of the Eocene series of Tertiary age and is found on or near the surface in Arkansas and northern Louisiana.

In the August, 1935, bulletin of the A.A.P.G. there is a very complete article on the St. Peter stratigraphy by Fanny Carter Edson. Copy of this bulletin can be obtained from the American Association of Petroleum Geologists, P. O. Box 1852, Tulsa.

There is another article on "Sedimentary and Petrographic Analysis of the St. Peter Sandstone" by George A. Thiel, published in bulletin of the Geological Society of America, Vol. 46, pp 559-614, 1935. The headquarters of the G.S.A. are located at 419 West 117th Street, New York City.

The Pre-Chattanooga "Wilcox" sand series has been extensively described and discussed by Luther H. White, in Bulletin 40, Vol. 1, Oklahoma Geological Survey, Norman, Okla.

Even though you may study all of these articles we doubt whether you will be able to correlate St. Peter and "Wilcox" sand so we suggest you do the simple thing—sent to the Geological Department of the University of Illinois, Urbana, Ill., for a small sample of St. Peter sand. You might also secure a sample of "Wilcox" sand from the Oklahoma Geological Survey, Norman, Okla. Be careful not to mix these samples for the sands look a lot alike but this does not mean correlation as to stratigraphy and depositional conditions.

Part Played by Geophysics in Discovery of New Oil Fields

Can you refer us to special information relative to the latest use of the seismograph method of determining the existence of oil structures? We are especially interested in obtaining authorative data showing the success of this method in pioneer drilling, or in other words, the relationship between productive and nonproductive tests that have been drilled on pioneer locations shot and approved by the most efficient seismograph methods.—W. J. S.

We do not know of any records showing the results of seismograph exploration for structures alone. Especially is it true that it would be difficult to find any record of the number of successful and unsuccessful tests following seismograph mapping.

However, you are referred to a paper presented by Wallace E. Pratt, Humble Oil & Refining Co., Houston, Tex., before the annual meeting of the A.A.P.G. held in Los Angeles in March and published in the March 25 issue of The Oil and Gas Journal, page 46. This paper contains tabulations classifying the methods used in discovering numerous fields during the period 1901 to 1935 inclusive and is quite comprehensive. Discoveries are classified as random drilling, obvious evidence, geological observations and geophysical investigations, with a column added to indicate number of deeper producing formations found in previously known shallow fields.

In discussing this table Mr. Pratt states:

"Table 3 may not be absolutely accurate in its classification by methods of discovery. Another inquirer might arrive at a slightly different result but it is believed the general trend would remain.

"In comment on Table 3 it may be observed that strictly geological studies are responsible for the discovery of nearly 50 per cent of the major oil fields found in the United States during the past 35 years, and that pure 'wildcatting' has yielded only 17 per cent of the total harvest of major oil fields. Only 19 per cent of our major fields have manifested themselves at the surface with sufficient clarity to be identifiable except by an expert. If the effort we have put forth had depended solely on luck and obvious evidences, therefore, we would have found only 36 per cent of the major oil fields found over this period.

"For the last 10 years the situation in this respect is even more striking. Our discoveries for the last 10 years number 100 major oil fields, more than the number discovered in the preceding 25 years. But only 4.6 per cent of these resulted from obvious evidence, and only 10 per cent were due to the random drilling type of wildcatting. Geological studies maintain their overall record of discovering 50 per cent of our major oil fields, and geophysical exploration, closely akin to geologic exploration, is responsible for 28 per cent of the major oil fields found during the past decade. If the results of geology and geophysics are combined, they include 78 per cent of our finding accomplishment during the last 10 years. Obvious surface evidences and random drilling together have revealed to us only 16 major oil fields (16 per cent of the total) within the past 10 years; less than one-half their previous contribution."

Automotive Engineers Discuss Lubricants and Knock Indicators at Meeting

WHITE SULPHUR SPRINGS, W. Va.—Technical papers devoted to lubricants and knock indicators occupied a position of outstanding prominence at the summer meeting of the Society of Automotive Engineers held here May 4-9. More than 32 papers were delivered at the meeting, covering subjects that included aircraft powerplants, cab-over-engine trucks, aircraft radio shielding, oil-temperature control, lubricants, hypoid gears and diesel engines. Approximately 600 engineers attended the technical sessions in which authorities from many parts of the world participated.

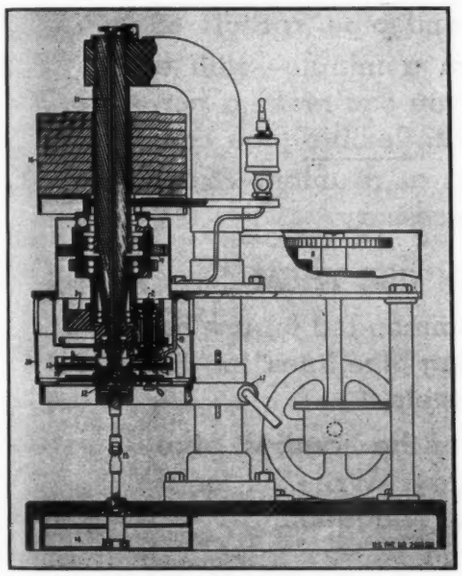


Fig. 1—Kinetic Oiliness Testing Machine—Model B used by Neely in obtaining information concerning friction-reducing and wear-reducing values of lubricants

Tuesday and Wednesday sessions of the society were devoted to papers on aircraft powerplants and aircraft radio shielding, cab-over-engine trucks and oil-temperature control. One conclusion reached by many of the attending engineers after hearing discussions and opinions of authorities in the aviation field was that airplane powerplants in the near future will be required to supply a 50 per cent greater power output and possess at least twice as many cylinders as are used in our present transport planes. A. H. Fedden, chief engineer of Bristol Airplane Co. and an outstanding authority in the field of aviation pointed out that because of the rapid progress in aircraft powerplant developments, engineers are hesitant to forecast what the immediate future may bring. However, the present intense research in engine, fuel and plane design is bringing forward new developments much more rapidly than was expected in the past, he stated.

In one session of the Thursday morning meeting two papers on lubricants were presented by G. L. Neely of Standard Oil Co. of California and H. A. Everett of Pennsylvania State College.

In his paper, "High Oiliness—Low Wear?" Mr. Neely presented interesting data on the effectiveness of addition agents on the wear-reducing value of the lubricants. He said the effectiveness of such compounds may often be considerably different in degree, and sometimes in direction, from the effect of friction. He reported that in his investigation of addition agents for lubricating oils, one of the most striking observations was that the great majority of oil-soluble compounds will reduce the coefficient of friction for some operating condition. It is therefore a matter to find an addition which merely improves oiliness.

The machine used in obtaining the data was especially designed for obtaining information on friction-reducing and wear-reducing value and is known as Kinetic Oiliness Testing Machine—Model B (Figure 1). It was designed to minimize the effects of viscosity in order to investigate lubricants under conditions where oiliness effects predominate. The frictional elements consist of two opposing surfaces, one in the form of a track having two flat-topped, sharp-edged, concentric rails and the other consisting of three buttons, each having at its outer edge a sharp-edged flat rim. The metal combination used was a ground, hardened-steel track and S.A.E. No. 64 Phosphor-bronze buttons.

In discussing the effect of different types of small quantities of addition agents, Mr. Neely stated: "The addition of compounds A and B (Figure 2) was, in effect, the same as reducing the load as is shown by the fact that the points for the oils containing these compounds, 1-A and 1-B, fall on the line joining the points obtained at various loads with lubricant 1. Thus the friction-reducing value was indicative of the wear-reducing value of these two compounds. However, compound D had entirely different characteristics in that the wear with lubricant 1-D was reduced to a far greater degree than was the friction. Compound C had an intermediary effect.

"On the other hand, the addition of compound E to lubricants 1 and 2, while slightly reducing the friction, greatly increased the wear. The result is shown by comparing points 1-E with 1, and 2-E with 2.

"Lubricants 5 and 6 are of interest in that they show it is possible to obtain extremely small amounts of wear and yet possess relatively poor friction-reducing properties. These data illustrate the futility of attempting to predict wear-reducing value from friction tests."

The author also pointed out that one important observation in the tests was the effect of the surface condition of the hardened-steel track. When the surface was prepared to a mirror finish, as compared with a smoothly ground surface, the friction was somewhat reduced though wear was reduced to a much greater degree. Furthermore, with a mirror-surfaced track, the influence of addition compounds was much less pronounced.

In conclusion, Mr. Neely stated, "It is believed that the data definitely show that friction and wear do not correlate and that high oiliness does not necessarily result in low wear."

The second paper delivered before the lubricant session, "High-Pressure Viscosity as an Explanation of Apparent Oiliness," by Mr. Everett, dealt with the vagaries of performance which oils show when passing through a machine measuring relative friction of oils of matched viscosities; thus ostensibly classifying oils as to relative oiliness.

In discussing the results of tests on various oils, Mr. Everett said that when matched as to viscosity, oils of the same crude but of different blends gave practically the same curve. And, oils produced from crudes of different fields gave decidedly different curves. A series of tests were made using three oils all matched as to viscosity at 130° F. but from western, Mid-Continent and eastern crudes; the western crude having a viscosity at bearing temperature materially lower than either of the others. Mr. Everett then de-

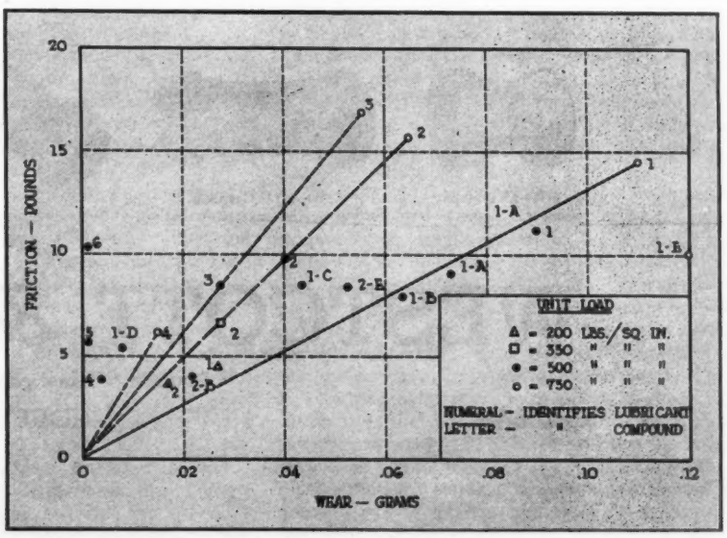


Fig. 2—Effect of addition agents on friction and wear as determined by Neely in the oiliness testing machine

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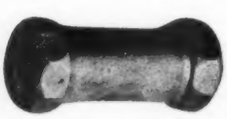

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scribed the determination of the viscosities of the oils at different temperatures and at various pressures up to 50,000 pounds per square inch. From the data obtained it was then possible to plot cross-curves showing the effect of both temperature and pressure on viscosity. Such characteristic curves combining the properties of pressure, viscosity and temperature (P.Z.T.) are shown in skeletonized form in Figure 3.

"Such comprehensive charts make it possible to obtain an idea of the successive viscosity changes experienced by a particle of oil in its travel through the bearing. For example, the oil droplet reaches the bearing at a temperature of 130° F. and at atmospheric pressure; then shortly after entering the bearing the pressure rises to a maximum accompanied by a corresponding temperature rise. As it approaches the exit edge, the pressure grows less but the temperature would continue to rise until at exit the temperature would be at a maximum while the pressure would return to atmospheric as the droplet left the bearing. Viscosities observed in the cycles were given as follows:

	Eastern	Mid-Continent	Western
Viscosity at entrance (atmos. pres.)	40	40	40
Viscosity after entrance	525	740	1,830
Viscosity just before exit	200	180	190
Viscosity after leaving (atmos. pres.)	20	15	15

Observations on the complex variation of film thickness consonant with rising pressure and temperature as encountered in an actual bearing is apparent, the author stated and the futility of off-hand predictions obvious. However, with equivalent viscosities known, computations become possible for film thickness, resistance, and work all in accordance with accepted hydrodynamic theory, he said.

Sharing interest with the lubricant session was the Friday morning meeting devoted to papers describing knock-testing and indicators for measuring fuel knock-ratings.

"A Springless Bouncing Pin Indicator" was the title of a paper delivered by Earl Bartholomew and Cleveland Walcutt of Ethyl Gasoline Corp. in which they pointed out that there are at present four variables in the laboratory procedure which are believed to account in a large measure for the disagreement among laboratories. These factors were given as being: Carbon accumulation, atmospheric humidity, bouncing pin adjustment and knock intensity. The recently developed bouncing pin indicator without springs appears to offer the possibility of a considerably more rigid control of the last two of these variables, they reported.

A brief description of the indicator was given, the authors pointing out that proved advantages of the indicator were:

1. Elimination of secondary bounce of the pin which reduces the number of electrical contacts per explosion.
2. Improved electrical contact.
3. Long lift of contact points.
4. High degree of stability in operation.
5. Maximum sensitivity, easily obtained by the adjustment of the gas between the contact points.
6. Ease of adjustment.

Following the presentation of the Bartholomew paper, J. R. Sabina delivered a paper by Richard Stansfield of the Anglo-Iranian Oil Co. on "The Sunbury Knock Indicator." In discussing the principles of operation of the indicator it was pointed out that research on the effects of detonation on the C.F.R. engine has shown that the cylinder strains, measured between the top and a point near the lower end of the cylinder casting, increase as the intensity of detonation increases. Examination of cathode ray oscillograms of the strains, and also of diagrams showing the velocities at which the various vibrations occur, has indicated that the mean value of the velocity of vibration is a very good measure of the effect on the ear of knock noise.

The authors described the principle of the indicator as follows: "A very convenient method for measuring the velocity at which the cylinder is strained depends on fixing an iron rod to the upper part of the cylinder, and mounting an electromagnetic type pick-up unit on the water connection at the lower end of the casting, the lower end of the rod and the pole at the pick-up being adjusted to give an air gap of a few thousandths of

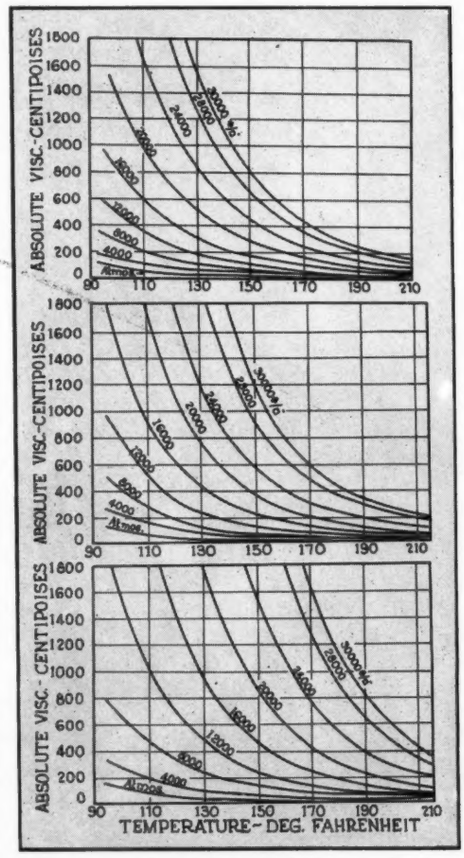

Fig. 3—Skeleton P-Z-T charts for (top to bottom) eastern, Mid-Continent and western crude oils as determined by Everett

an inch. The pick-up unit consists of a permanent magnet around the pole to which is wound a coil of fine wire connected to terminals from which the electrical output may be taken, this output being proportional to the velocity at which the air gap alters. Leads are carried from the unit to the grid of a rectifying and amplifying vacuum tube and thence to a knock-motor."

A knock indicator built along these lines, Mr. Sabina pointed out would have the following merits: It has no moving parts other than the pointer of the knock meter; the components mounted on the engine are not subject to gas pressure or temperature; no major alternation is necessary to equip existing C.F.R. engines with the apparatus; and adjustments are not critical and alternations of the air gap only affect sensitivity without altering ratings.

Another interesting paper dealing with spark advance indicators was prepared by J. R. MacGregor and K. R. Eldredge of the Standard Oil Co. of California and in which they described a device to indicate instantly and continuously spark advance of gasoline power plants subjected to testing. In the discussion of their paper the authors stated:

"An analysis of the cyclic characteristics of an internal combustion engine suggested that a mechanism capable of indicating the ratio of intervals between the occurrence of the spark and some other event in the engine cycle, compared with the remainder of the engine cycles would afford the desired characteristics providing the mechanism could be made rugged, accurate and uninfluenced by changes in speed.

"A device on which patents have been applied for, has been developed which accomplishes this purpose and is adapted to the continuous and instantaneous indication of the spark advance of a vehicle on the road or in the laboratory. Connections to the engine are primarily of an electrical nature and thus the installation on any engine is greatly facilitated. It will become obvious that its field of usefulness is not confined to this specific purpose since it may be employed in the indication of the interval ratio between cyclically repeating sets of impulses regardless of the nature of the impulses. In its final form, the instrument indications are unaffected by changes in engine speed throughout the normal range of speeds encountered. . . .

"In summary it may be stated that a thoroughly satisfactory spark advance indicator of the portable type has been developed. It may readily be attached to any engine whether in the laboratory or on the road and the indications of spark advance are continuous, instantaneous and faithful."

"The idea of a pair of tapered gears, in which the axis of one member is offset from the axis of the other, is not of recent conception," W. A. Witham of Gleason Works pointed out in the Saturday morning session of the society. "Prior to 1925, however, no method was known for correctly designing or cutting the teeth of such gears."

Following this opening statement in presenting his paper on "Hypoid Gears, Axles and Lubricants," Mr. Witham discussed the early development of the hypoid gear and its gradual adoption by car manufacturers. It was early found, he stated, that the hypoid gear was inherently stronger and quieter than spiral bevel gears; thus with the ever-increasing motor torques and the continued demand for quieter performance the eventual use of hypoid gears was inevitable.

Methods of manufacturing the gears and equipment used in cutting teeth were described, the author then discussing lapping, gear design, tooth loads and gear mountings.

"We have, in the past 10 or 15 years, run a great number of tests to determine the fatigue life of spiral bevel and hypoid gears subjected to maximum motor torque through low gear. No attempt to stimulate actual road conditions has been made other than to run the gears mounted in the same axle assembly as under the car. By correlating the results of these tests with the service records of various manufacturers we have reached some definite conclusions as to the fatigue life required of a good axle."

So long as our manufacturers recommend extreme-pressure lubricants for transmissions, overdrives or for use in rear axles, there will be confusion, C. M. Larson, supervising engineer of Sinclair Refining Co., stated in presenting his paper, "Need for Simplifying Recommendations of Transmission and Rear Axle Lubricants," in the Saturday morning session. Neither the car owner nor the service-station attendant can be expected to keep rear axles and transmissions in good condition with the plethora of gear-lubricant recommendations made by refiners and car manufacturers, he pointed out.

The Sunday morning session was devoted to hearing papers on diesel engines, T. B. Rendel presiding. Authors presenting papers were H. R. Ricardo and J. H. Pitchford of Ricardo & Co. and F. J. Jumper of Union Pacific Lines.

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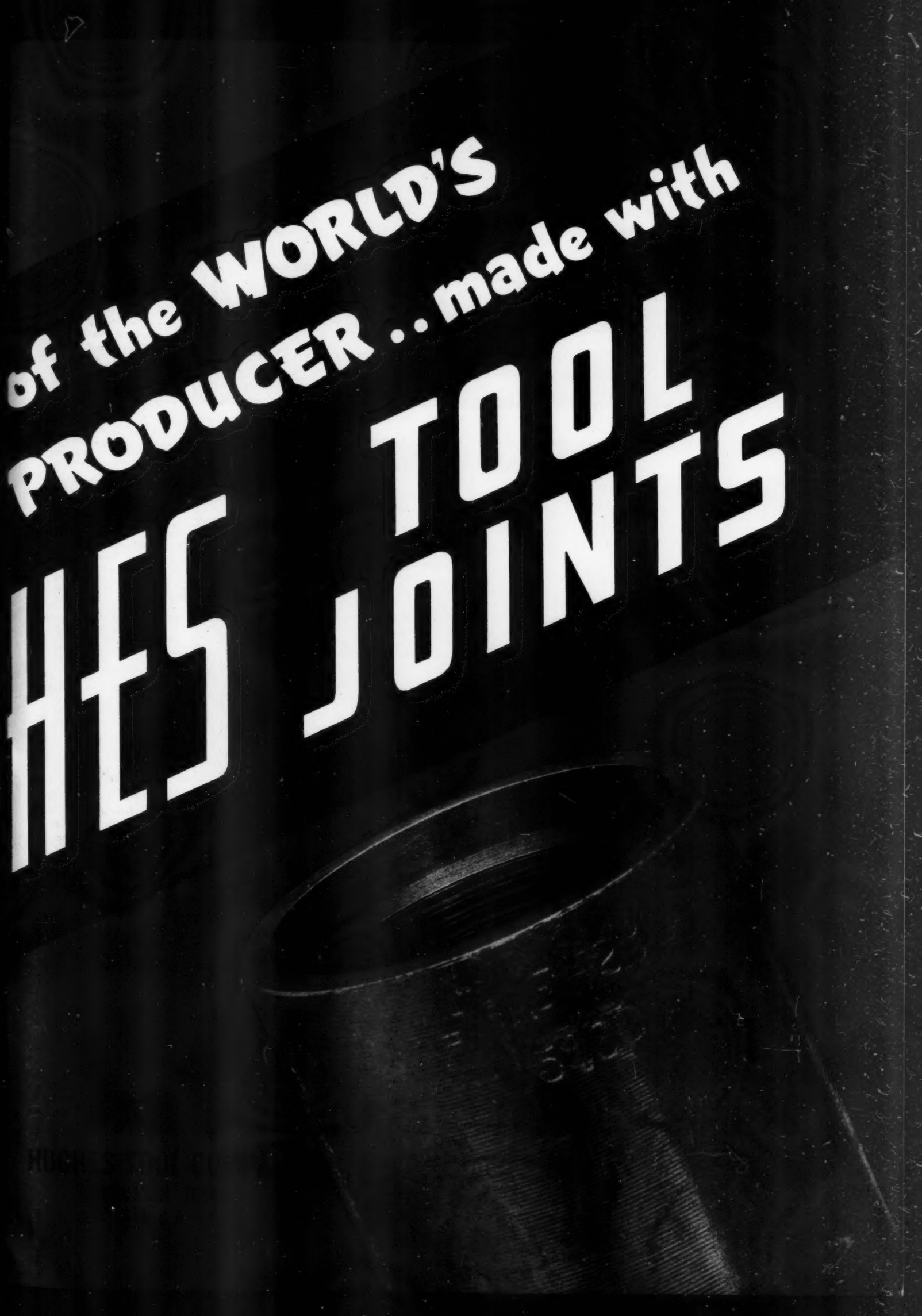

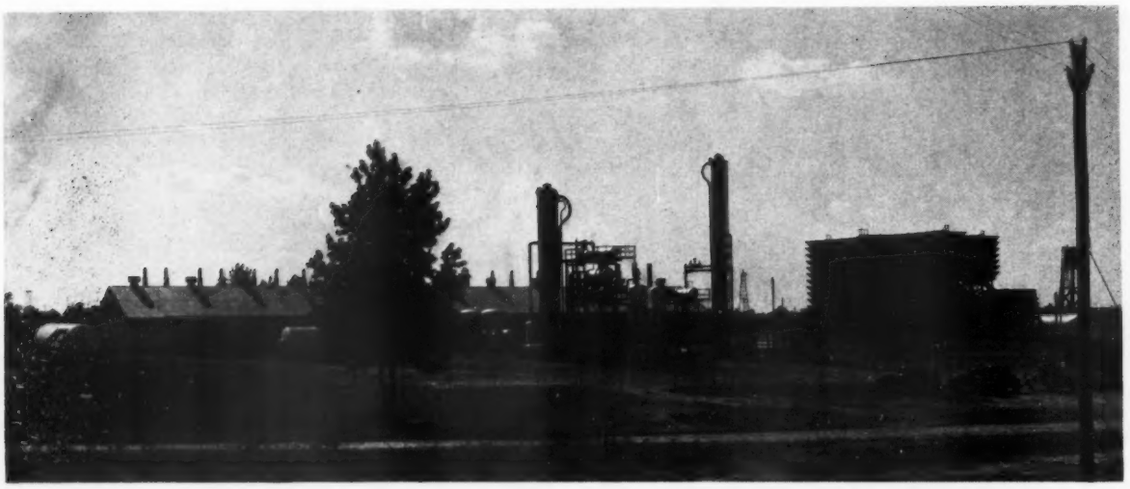

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Pres., E. B. Reeser. *Exec. V. P.*, R. A. Broomfield, Los Angeles, Calif. *V. P.s*, D. R. Snow, D. L. Frawley, William C. Whaley, E. M. Skeehan, R. A. Broomfield, Jr. *V. P.* and *Sec.*, James A. Dunn, New York City. *V. P.* and *Treas.*, L. D. Messner. *Sales Mgr.*, George J. Locke. *Gen. Supts.*, A. J. Schlosser, J. C. Gilbert, 714 W. Olympic, Los Angeles, Calif. *Pur. Agts.*, O. E. McClatchey, W. E. Cederlof, Los Angeles, Calif. *Supts.*, E. E. Troyer, Box 224, Avant, Okla.; J. O. Green, Box 36, Earlsboro, Okla.; F. W. Tunstall, Box 2039, Tulsa, Okla.; C. I. Stearns, Route 1, Barnsdall, Okla.; G. R. Nicholas, Box 228, Osage, Okla.; R. W. Shannon, Route 2, Box 173, Oxford, Kans.; Frank Chambers, Box 156, Beggs, Okla.; O. C. Nelson, Route 1, Goleta, Calif. *Plants* in Oklahoma, Kansas and California. *Capacity*, 155,200.

Bartlett Gasoline Co., 1801 National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., J. H. McCoy. *V. P.*, Dean E. Foster. *Sec.* and *Treas.*, H. R. Johnson. *Gen. Supt.*, Dean E. Foster. *Sales Mgr.*, A. J. Pfister. *Pur. Agt.*, Dean E. Foster. *Ch. Chem.*, Dean E. Foster. *Ch. Engr.*, Dean E. Foster.

Abbreviations:

Chm. Bd.—Chairman of Board
Pres.—President
V. P.—Vice President
Sec.—Secretary
Treas.—Treasurer
Gen. Mgr.—General Manager
Gen. Supt.—General Superintendent
Sales Mgr.—Sales Manager
Tankcar S. M.—Tankcar Sales Manager
Pur. Agt.—Purchasing Agent
Traf. Mgr.—Traffic Manager
Ch. Engr.—Chief Engineer
Supt.—Superintendent
Asst. Supt.—Assistant Superintendent
Ch. Chem.—Chief Chemist
Capacity—gallons per day

Supt., E. W. Melling, Box 467, Butler, Okla. *Plant* in Oklahoma. *Capacity*, 7,000.

Bayliss & Fasenmeyer, Titusville, Pa.

Plant in Pennsylvania. *Capacity*, 1,000.

Belridge Oil Co., 815 Edison Bldg., Los Angeles, Calif.

Pres., Burton E. Green. *V. P.s*, Frank H. Buck, H. L. Westbrook, F. B. Sutton. *Sec.*, F. B. Sutton. *Treas.*, H. L. Westbrook. *Gen. Supt.*, C. E. Coleston, McKittrick, Calif. *Pur. Agt.*, W. C. Wickersham. *Plants* in California. *Capacity*, 100,000 (50,000 shut down).

Big Lake Oil Co., 223 Fourth Ave., Pittsburgh, Pa.

V. P.s, C. E. Beyer, W. S. Hallanan, A. B. Dally, Jr. *Sec.* and *Treas.*, W. E. Huston. *Gen. Supt.*, J. S. Posgate. *Pur. Agt.*, R. E. Johnson. *Ch. Chem.*, J. C. Moore. *Supt.*, C. C. Hickle, Texon, Tex. *Plant* in Texas. *Capacity*, 50,000.

Blue Creek Oil & Gas Co., 705 Security Bldg., Charleston, W. Va.

Pres., George E. Thomas. *V. P.*, D. T. McClure. *Sec.*, D. T. McClure. *Treas.*, G. E. Tribble. *Gen. Supt.*, D. T. McClure. *Sales Mgr.*, G. E. Tribble. *Pur. Agt.*, G. E. Tribble. *Supt.*, G. W. McCamey, Blue Creek, W. Va. *Plant* in West Virginia. *Capacity*, 3,500.

Brea Canon Oil Co., 831 Standard Oil Bldg., Los Angeles, Calif.

Pres., Dan Murphy. *Sec.*, G. Holterhoff, Jr. *Plant* in California. *Capacity*, 14,000.

Brenneman and MacDonell, 312 S. Cole St., Lima, Ohio.

Partnership, E. R. Perfect and A. D. MacDonell. *Gen. Supt.*, E. R. Perfect, Box 337, Oblong, Ill. *Plants* in Illinois. *Capacity*, 2,000.

Buckeye Natural Gasoline Corp., 504 E. Archer, Tulsa, Okla.

Pres., Chas. C. Cartwright, Fort Worth, Tex. *V. P.*, A. V. B. Candler. *Sec.* and *Treas.*, James T. Neal. *Gen. Supt.*, E. C. Smith. *Pur. Agt.*, H. E. Heywood. *Ch. Chem.*, E. M. Hughes. *Ch. Engr.*, R. B. McQuiddy. *Supt.*, E. C. Smith, Magic City, Tex. *Plant* in Texas. *Capacity*, 12,000.

C

Calumet Oil Co., 517 I. W. Hellman Bldg., Los Angeles, Calif.

Pres., J. E. Wallis. *V. P.'s*, T. H. Collins, Phillip B. Kennedy. *Sec.* and *Treas.*, W. F. Staunton *Gen. Supt.*, J. C. Armstrong, Fillmore, Calif. *Plant in* California. *Capacity*, 1,000.

Canadian River Gas Co., P. O. Box 1087, Colorado Springs, Colo.

Pres., N. K. Moody, Tulsa, Okla. *V. P.s*, P. S. Spencer, New York City; R. E. Wertz, Amarillo, Tex. *Sec.* and *Treas.*, George Baird, New York City. *Pur. Agt.*, L. B. Whitefield. *Ch. Chem.*, John H. Hallenberger. *Supt.*, L. W. Jackson, Bivins Station, Channing, Tex. *Ch. Oper.*, M. M. Arbuckle, Bivins Station, Channing, Tex. *Plant* in Texas. *Capacity*, 30,000.

Cannon Gasoline Co., Amarillo, Tex.

Pres., J. J. Hastings. *V. P.*, F. J. Storm. *Sec.*, J. B. Dooley. *Treas.*, F. J. Storm. *Gen. Supt.*, J. J. Hastings. *Sales Mgr.*, F. J. Storm. *Pur. Agt.*, F. J. Storm. *Ch. Engr.*, J. J. Hastings. *Plant* in Texas. *Capacity*, 5,000.

Carbide & Carbon Chemicals Corp., 30 E. Forty-second St., New York, N. Y.

Pres., J. A. Rafferty. *V. P.s*, G. O. Curme, Jr., R. W. White, H. E. Thompson, J. W. McLaughlin, J. G. Davidson. *Sec.*, A. C. Cornell. *Treas.*, C. T. Ayres. *Gen. Supt.*, R. N. Graham. *Sales Mgr.*, W. F. Reich, Jr. *Pur. Agt.*, W. F. Ackerman. *Ch. Chem.*, G. V. Scofield. *Ch. Engr.*, C. S. Dunn. *Supts.*, C. M. Stuter, Hastings, W. Va.; F. W. Hineline, Diamond, W. Va. *Plants* in West Virginia. *Capacity*, 3,500.

Cargray Corp., 801 Amarillo Bldg., Amarillo, Tex.

Pres., Vernon F. Taylor. *V. P.'s*, D. D. Harrington, L. R. Hagy. *Sec.* and *Treas.*, E. D. Timberlake. *Gen. Supt.*, C. F. Free, Box 2062, Pampa, Tex. *Plant* in Texas. *Capacity*, 250,000.

Carnegie Natural Gas Co., 962 Frick Annex, Pittsburgh, Pa.

Pres., S. W. Meals. *Sec.*, J. W. Hamilton. *Treas.*, H. E. Jeffries. *Gen. Supt.*, H. J. Hess. *Plants* in Pennsylvania and West Virginia. *Capacity*, 11,800.

Carpenter (M. A.), Karns City, Pa.

Plant in Pennsylvania. *Capacity*, 200.

Carter Oil Co., The, National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., C. H. Lieb. *V. P.s*, J. J. Conry, J. A. Veasey. *Sec.* and *Treas.*, C. D. Mill. *Gen. Supt.*, George E. Edgett. *Ch. Chem.*, Charles Richardson. *Ch. Engr.*, P. F. Michaels. *Supts.*, W. T. Mills, Box 787, Wilson, Okla.; P. A. Ratliffe, Box 8, Cromwell, Okla.; William Brown, Box 997, Seminole, Okla.; A. E. Perry, Box 997, Seminole, Okla.; Clyde J. Randles, Box 997, Seminole, Okla. *Plants* in Oklahoma. *Capacity*, 134,000.

Chambers Oil Co., 214 Chambers Bldg., Oil City, Pa.

Plant in Pennsylvania. *Capacity*, 150.

Chase Gasoline Co., Thistle Bldg., Sistersville, W. Va.

Pres., J. J. McKay. *V. P.'s*, C. A. McKay and L. Lesseig. *Sec.*, C. A. McKay. *Treas.*, H. Boyers. *Plants* in Oklahoma. *Capacity*, 2,000.

Chemical Oil & Gas Co., Benedum-Trees Bldg., Pittsburgh, Pa.

Plant in West Virginia. *Capacity*, 500.

Chief Refining Co., Gladewater, Tex.

Pres., H. C. Haberle. *Sec.* and *Treas.*, L. B. Haberle. *Gen. Supt.*, S. B. Moreau. *Ch. Chem.*, F. R. Purvis. *Plant* in Texas. *Capacity*, 5,000 (shut down).

Clinger Oil & Gas Co., 228 Main St., Tidioute, Pa.

Pres., A. V. Clinger. *V. P.* George Clinger. *Pur. Agt.* and *Treas.*, W. F. Clinger. *Supts.*, C. R. Boyd, Truemans, Forest County, Pennsylvania; J. E. Peterson, R.F.D. 3, Tidioute, Pa. *Plants* in Pennsylvania. *Capacity*, 1,500.

Clymore Co., Inc., The, 1204 Alamo National Bldg., San Antonio, Tex.

Pres., Garland Clymore. *Asst. Mgr.*, H. L. McQuiston. *Sec.*, B. S. Fenlaw. *Treas.*, R. C. Willett. *Gen Supt.*, R. S. Wyrick, Refugio, Tex. *Ch. Chem.*, V. A. Goss. *Ch. Engr.*, W. R. Hounsell. *Plant* in Texas. *Capacity*, 30,000.

Cochran, (John G.) & Co., Sheffield, Pa.

Mgr., John G. Cochran. *Gen. Supt.*, J. C. Curtin. *Plant* in Pennsylvania. *Capacity*, 1,000 (shut down).

Coffin (C. J.), Chicora, Pa.

Owner and *operator*, C. J. Coffin. *Supts.*, C. W. Miller, Route 1, Karns City, Pa.; George Work, Route 2, Chicora, Pa. *Plants* in Pennsylvania. *Capacity*, 150.

Coline Gasoline Corp., Railway Exchange Bldg., Chicago, Ill.

Pres., J. H. Keefe. *V. P.*, F. C. Ripley. *Asst. Sec.*, A. J. Olmsted. *Asst. Treas.*, Herman Lankheet. *Gen. Supt.*, H. E. Moulton. *Pur. Agt.*, J. R. Burns. *Supts.*, D. R. Van Gorder, Box 177, Torrance, Calif.; J. L. Black, Box G-8, Ventura, Calif. *Plants* in California. *Capacity*, 20,000.

Coltexo Corp., Monroe, La.

Pres., F. F. Curtze. *V. P.*, Allan F. Kitchel. *Sec.*, Reid L. Carr. *Treas.*, George L. Bubb. *Gen. Supt.*, W. E. Reardon. *Sales Mgr.*, W. H. Anders. *Ch. Chem.*, H. J.

Hunter. *Ch. Engr.*, A. T. Givens. *Supts.*, J. P. Cox, Lefors, Tex.; G. W. Ross, Lefors, Tex.; H. E. Means, Rodessa, La. *Plants* in Texas and Louisiana. *Capacity*, 80,000.

Columbia Gas & Electric Corp., 61 Broadway, New York City

Pres., Edward Reynolds, Jr. *V. P.s*, H. C. Blackwell, P. S. Clapp, R. H. Delafield, W. W. Freeman, H. A. Wallace, C. I. Weaver, T. R. Weymouth. *Sec.*, H. H. Pell. *Treas.*, F. B. Flahive. *Plants* in Pennsylvania. *Capacity*, 15,000.

Columbian Gasoline Corp., Monroe, La.

Pres., F. F. Curtze. *V. P.*, Reid L. Carr. *Sec.*, Reid L. Carr. *Treas.*, George L. Bubb. *Gen. Supt.*, W. E. Reardon. *Sales Mgr.*, W. H. Anders. *Ch. Chem.*, H. J. Hunter. *Ch. Engr.*, A. T. Givens. *Supts.*, R. A. Boyd, Fairbanks, La.; B. F. Spigener, Fairbanks, La.; J. S. Dunn, Swartz, La.; E. D. Nolan, Shamrock, Tex. *Plants* in Louisiana and Texas. *Capacity*, 20,000.

Consolidated Gas Utilities Corp., Hales Bldg., Oklahoma City, Okla.

Pres., Logan W. Cary. *V. P.'s*, E. C. Joullian; R. K. Bissell, 14 Wall St., New York City. *Sec.*, Robert LeRoy. *Treas.*, J. W. Metcalfe. *Pur. Agt.*, C. S. Worley. *Ch. Engr.*, C. S. Worley. *Supt.*, H. W. Shaffer, Wellington, Kans. *Plant* in Kansas. *Capacity*, 12,000 (shut down).

Continental Oil Co., Continental Bldg., Ponca City, Okla.

Pres., Dan Moran. *V. P.'s*, W. W. Bruce, W. H. Ferguson. *Sec.* and *Treas.*, G. F. Smith. *Gen. Supt.*, R. A. Carter. *Sales Mgr.*, H. J. Kennedy. *Pur. Agt.*, W. H. O'Connor. *Ch. Chem.*, B. H. Lincoln. *Ch. Engr.*, M. E. Clawson. *Supts.*, F. B. Haverfield, Basile, La.; R. A. Noah, Hobbs, N. Mex.; D. M. Brown, Lance Creek, Wyo.; R. G. Kennelly, Columbine, Wyo.; H. D. Roberts, Fort Collins, Colo.; J. N. Garritson, Britton, Okla.; J. E. Storts, Lake Charles, La. *Plants* in Louisiana, New Mexico, Wyoming, Colorado and Oklahoma. *Capacity*, 77,500.

Cook Oil Lease, Kellettville, Pa.

Pres., E. S. Collins. *V. P.*, F. R. Klinestiver. *Sec.*, J. E. Flynn. *Gen. Supt.*, Lee Dunkle, Mayburg, Pa. *Sales Mgr.*, F. R. Klinestiver. *Pur. Agt.*, F. R. Klinestiver. *Ch. Engr.*, Lee Dunkle. *Plant* in Pennsylvania. *Capacity*, 225.

Cowan Oil & Refining Co., 534 Bartlett Bldg., Los Angeles, Calif.

Pres., John A. Arnold. *Sec.* and *Treas.*, W. G. Howard. *Plant* in California. *Capacity*, 25,000.

Crescent Gasoline Co., Overton, Tex.

Plant in Texas. *Capacity*, 3,000 (shut down).

Crosbie, Inc. (J. E.), National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., J. E. Crosbie. *V. P.*, W. B. Moran. *Sec.*, M. E. Church. *Treas.*, C. H. Sweet. *Gen. Supt.*, Anson W. Dwen. *Pur. Agt.*, Anson W. Dwen. *Supts.*, D. Dodson, Box 625, Okemah, Okla.; J. Y. Seward, Box 158, St. Louis, Okla.; S. M. Barrett, Box 312, Holdenville, Okla.; D. B. Young, Box 5, Fittstown, Okla. *Plants* in Oklahoma. *Capacity*, 120,000.

D

Danciger Oil & Refineries, Inc., W. T. Waggoner Bldg., Fort Worth, Tex.

Pres., Dan Danciger. *V. P.s*, Joe Danciger, A. Danciger, Jack Danciger. *Sec.* J. E. Vaeth. *Treas.*, Joe Danciger. *Gen. Supt.*, W. D. McIntyre. *Sales Mgr.*, L. R. Brammer. *Pur. Agts.*, G. B. Magruder, Jr.; Jay Hausam. *Ch. Chem.*, Lysle Owen. *Supts.*, F. E. Shryock, Box 1662, Pampa, Tex.; M. R. Ryan, Box 1102, Longview, Tex.; Guy Barriett, Danciger, Tex.; F. L. Abraham, Box 278, Lefors, Tex. *Plants* in Texas. *Capacity*, 60,000.

Darby Lynde Co., The, Philtower Bldg., Tulsa, Okla.

Pres., J. F. Darby. *V. P.*, C. F. Lynde. *Sec.*, S. B. Griffith. *Gen. Supt.*, J. R. Gilbert. *Plants* in Texas. *Capacity*, 10,000 (5,000 shut down).

Daugherty & Co. (C. R.), Y. M. C. A. Bldg., Butler, Pa.

Partnership, C. R. Daugherty and M. G. Daugherty. *Plants* in Pennsylvania. *Capacity*, *145*.

Deep Oil Development Co., 812 City National Bank Bldg., Wichita Falls, Tex.

Pres., J. T. Harrell. *V. P.'s*, J. W. Thomas, Joe A. Keil. *Sec.* and *Treas.*, John C. Coffey. *Gen. Supt.*, L. F. Cox. *Pur. Agt.*, L. F. Cox. *Supt.*, M. H. Montfort, Box 572, Archer City, Tex. *Plant* in Texas. *Capacity*, 4,000.

Deep Rock Oil Corp., Atlas Life Bldg., Tulsa, Okla.

Trustee, H. N. Greis. *Gen. Supt.*, R. K. Huey. *Sec.-Treas.*, W. R. Francisco. *Pur. Agt.*, R. G. Martin. *Ch. Engr.*, C. O. Moss. *Ch. Chem.*, B. C. Frischot, Cushing, Okla. *Supt. in charge of plants*, C. O. Moss, Box 485, Drumright, Okla. *Supts.*, George Wolterhausen, Cushing, Okla.; Elmer Singer, Shamrock, Okla. *Plants* in Oklahoma. *Capacity*, 8,700.

Del Rey Oil & Gas Co., Washington St. and Beach Ave., Venice, Calif.

Pres., A. E. Schiltz. *V. P.*, F. A. E. Lowell. *Sec.*, H. W. Wright. *Gen. Supt.*, F. A. E. Lowell. *Pur. Agt.*, J. P. Magee. *Ch. Chem.*, A. Pfeil. *Ch. Engr.*, F. A. E. Lowell. *Plant* in California. *Capacity*, 60,000.

Dempseytown Gas Co., 103 Mill St., Port Allegany, Pa.

Pres., C. I. Crippen. *V. P.*, J. H. Isherwood. *Sec.*, J. C. Forsyth. *Treas.*, C. R. Beddows. *Gen. Supt.*, E. H. Crippen. *Plants* in Pennsylvania. *Capacity*, 185.

Desdemona Gasoline Co., 504 Capps Bldg., Fort Worth, Tex.

Pres., W. F. MacDermott. *V. P.*, Floyd Evans. *Sec.*, M. B. Todd. *Treas.*, W. F. MacDermott. *Gen. Supt.*, D. H. Moss, Desdemona, Tex. *Plant* in Texas. *Capacity*, 3,500.

Devonian Oil Co., 1705 National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., A. W. Leonard. *V. P.*, L. C. Ritts. *Sec.*, George D. Foster. *Treas.*, L. C. Ritts. *Gen. Supt.*, E. S. Calvert. *Pur. Agt.*, H. R. Dean. *Supt.*, W. A. Fosburgh, Box 106, Kellyville, Okla. *Plant* in Oklahoma. *Capacity*, 20,000.

Dinsmoor & Co., 702 Second St., St. Marys, W. Va.

Pres., W. P. Kerwood, Jr. *V. P.*, F. K. Sellers. *Sec.*, Denson Dinsmoor. *Treas.*, Mariana B. Dinsmoor. *Gen. Supt.*, D. H. Israel. Supts., J. F. Kelley, R. 39, St. Marys, W. Va.; Harry Brothers, St. Marys, W. Va.; Charles Colvin, R. 39, St. Marys, W. Va.; Clifford Haddox, R. 2, St. Marys, W. Va.; Ira North, R. 39, St. Marys, W. Va. *Plants* in West Virginia. *Capacity*, 400.

Dunlap, H. G., Chicora, Pa.

Pres., H. G. Dunlap. *Sec.*, J. M. Dunlap. *Treas.*, H. G. Dunlap. *Sales Mgr. Pur. Agt.*, H. G. Dunlap. *Ch. Engr.*, H. G. Dunlap. *Plant* in Pennsylvania. *Capacity*, 10.

Dun Mar Oil & Gas Co., Route 3, Fairview, W. Va.

Plant in West Virginia. *Capacity*, 50.

E

Eagle Gasoline Co., Philtower Bldg., Tulsa, Okla.

Pres., C. G. Tibbens. *V. P.*, F. E. Tibbens. *Sec.* and *Treas.*, W. Z. Savage. *Plant Supt.*, Ira Cheffer. *Plant* in Oklahoma. *Capacity* 1,000.

Eagle-Picher Mining & Smelting Co., The, 214 E. Third St., Joplin, Mo.

Pres., A. E. Bendelari. *V. P.'s*, George W. Potter, Frederick Hertenstein. *Sec.* and *Treas.*, Jos. Hummel, Jr. *Gen. Supt.*, W. N. Corbet. *Sales Mgr.*, W. N. Corbet. *Plant* in Oklahoma. *Capacity*, 5,000.

Eason Oil Co., Bass Bldg., Enid, Okla.

Pres., T. T. Eason. *V. P.*, L. D. Hinman. *Sec.* and *Treas.*, T. W. Eason. *Gen. Supt.*, B. T. Weidner. *Sales Mgr.*, R. H. Rowland. *Pur. Agt.*, A. C. Hatton. *Ch. Chem.*, G. B. Lyon. *Supts.*, P. G. Maranville, Enid, Okla.; B. T. Weidner, Crescent, Okla.; T. E. Sisk, Covington, Okla. *Plants* in Oklahoma. *Capacity*, 18,000.

East Texas Refining Co. of Delaware, 1405 Tower Petroleum Bldg., Dallas, Tex.

Pres., F. W. Burford. *V. P.*, John J. Thomas. *Sec.*, John R. Scott. *Treas.*, E. V. Campbell. *Sales Mgr.*, R. E. Bishop. *Pur. Agt.*, W. M. Bisett. *Ch. Chem.*, H. H. Knoch. *Supt.*, C. H. Merritt, Rodessa, La. *Plant* in Louisiana. *Capacity*, 12,000.

Edwards (Eddie O.), R. D. No. 2, Titusville, Pa.

Plant in Pennsylvania. *Capacity*, 170.

Eiswerth Hefren & Co., Inc., Arthur, Pa.

Pres., F. M. Baker. *V. P.*, W. J. Ochs. *Sec.* and *Treas.* J. F. Eiswerth. *Plant* in Pennsylvania. *Capacity*, 400 (shut down).

Ellenberger & Sons (Wm. J.), R.F.D. 1, Karns City, Pa.

Plant in Pennsylvania. *Capacity*, 300.

Elliott Bros., R.F.D. 2, Chicora, Pa.

Plant in Pennsylvania. *Capacity*, 500.

Empire Oil & Refining Co., Empire-Masonic Bldg., Bartlesville, Okla.

Pres., F. R. Coates. *V. P.s*, H. D. Frueauff, W. A. Jones, H. R. Straight, A. W. Ambrose. *Sec.*, C. E. Murray. *Asst. Treas.*, L. A. Lynd. *Gen. Supt.*, H. A. Ellis. *Asst. Gen. Supt.*, R. W. Johnston. *Sales Mgr.*, S. B. Crooks. *Pur. Agt.*, G. E. Goddard. *Supts.*, C. E. Aydelotte, R.F.D. Teter, Hamilton, Kans.; A. S. Corey, Box "V," Haven, Kans.; J. A. Dowler, Box 2093, Wichita, Kans.; G. F. Downs, Tallant, Okla.; E. R. Estus, Box 395, Seminole, Okla.; I. L. Fletcher, Box 1238, Odessa, Tex.; L. L. Grubb, Box 1205, Seminole, Okla.; V. F. Hobart, Box 30, Sasakwa, Okla.; J. F. Hodge, R. No. 1, Box 600, Seminole, Okla.; P. J. Phillips, Drawer "F," Konawa, Okla.; J. L. Sperry, Box 1742, Pampa, Tex.; D. G. Thoes, Box 498, Burrton, Kans.; W. H. Tillock, R. No. 2, Wanette, Okla.; L. A. Webster, Madison, Kans.; G. B. Wooster, Box 1460, Wewoka, Okla.; W. H. Yingling, Arkansas City, Kans. *Plants* in Kansas, Oklahoma and Texas. *Capacity*, 325,000.

Enfisco Oil Corp., Box 2021, Tulsa, Okla.

Pres., Edward N. Fisher. *V. P.s*, S. S. Smith, J. F. Dittman. *Sec.*, M. Jerome. *Treas.*, L. J. Margulies. *Plant* in Oklahoma. *Capacity*, 1,500.

Equitable Gas Co., 435 Sixth Ave., Pittsburgh, Pa.

Pres., F. R. Phillips. *V. P.* and *Gen. Mgr.*, F. F. Schauer. *Sec.*, W. B. Carson. *Treas.*, C. J. Braun, Jr. *Gen. Supt.*, Judson Bonsall. *Pur. Agt.*, C. W. Lepper. *Supts.*, George M. Myers, Rogersville, Pa.; P. E. Jackson, R.F.D. 1, Clarksville, Pa. *Plants* in Pennsylvania. *Capacity*, 12,000.

F

Falling Rock Cannel Coal Co., Weir, W. Va.

Plant in West Virginia. *Capacity*, 3,000.

Federal Oil & Gas Co., 109 N. Union St., Akron, Ohio

V. P., Dr. M. M. Bauer. *Sec.*, C. F. Schnee. *Treas.*, E. B. Gill. *Plants* in Pennsylvania and West Virginia. *Capacity*, 850.

Field Gasoline Corp. (O. C.), 950 Wilshire Blvd., Los Angeles, Calif.

Pres., O. C. Field. *V. P.s*, J. C. Burks, W. G. Metson. *Sec.*, Newton J. Hale. *Treas.*, R. B. Hale. *Gen. Supt.*, A. L. Henrickson. *Plants* in California. *Capacity*, 90,000.

Fleming (J. E.), Box 606, Titusville, Pa.

Owner, J. E. Fleming. *Supts.*, George W. Miller, Grand Valley, Warren County, Pennsylvania; A. J. Phillips, Truemans, Forest County, Pennsylvania. *Plants* in Pennsylvania. *Capacity*, 600.

Forest Chemical Co., Sheffield, Pa.

Pres., C. R. McNeal. *V. P.*, C. F. McNeal. *Sec.* and *Treas.*, C. R. McNeal. *Supt.*, C. F. McNeal. *Plant* in Pennsylvania. *Capacity*, 3,000 (shut down).

Forest Oil & Gas Co., Clinton, Pa.

Plant in Pennsylvania. *Capacity*, 300.

Fullerton Oil Co., R.F.D. 1, Box 456, Fullerton, Calif.

Pres., W. L. Valentine. *V. P.*, W. F. Ball. *Sec.*, H. T. Severns. *Treas.*, E. R. Valentine. *Plant* in California. *Capacity*, 6,000.

G

General American Oil Co., Box 1113, Shreveport, La.

Pres., J. W. Gilliland. *V. P.*, Malcolm E. Wilson. *Sec.*, A. H. Meadows. *Plant Supt.*, C. W. Warwick, Gladewater, Tex. *Plant* in Texas. *Capacity*, 12,000.

General Petroleum Corp. of Calif., 1003 Higgins Bldg., Los Angeles, Calif.

Pres., A. L. Weil. *V. P.'s*, R. A. Sperry, S. J. Dickey, W. L. McLaine, A. H. DeFriest. *Sec.*, D. W. Woods. *Treas.*, W. Cunningham. *Mgr. Gas Dept.*, R. C. Wheeler. *Mgr. Engr. Dept.*, V. F. Grace. *Sales Mgr.*, A. H. DeFriest. *Mgr. Laboratories*, G. F. Olsen. *Pur. Agt.*, E. W. Beck. *Supts.*, J. L. McMahon, Santa Fe Springs; J. W. Scott, 124 Avalon Blvd., Los Angeles; H. W. Havins, Box P-1, Ventura; H. S. Donovan, Lebec; E. P. Donahue, R.F.D. 1, Box 466, Fullerton. *Plants* in California. *Capacity*, 240,000.

Gilmore Dabney, Inc., 2423 East 28th St., Los Angeles, Calif.

Pres., E. B. Gilmore. *V. P.*, Milton H. Philleo. *Sec.* and *Treas.*, C. S. Beesemyer. *Gen. Supt.*, H. C. Eggleston. *Sales Mgr.*, J. L. Coates. *Pur. Agt.*, D. H. F. McPherson. *Ch. Chem.*, L. R. Schandoney. *Ch. Engr.*, E. Newman. *Supt.*, Wilson Shellshear, 2140 Walnut Ave., Long Beach. *Plants* in California. *Capacity*, 120,000 (90,000 shut down).

Glacier Production Co., Electric Bldg., Butte, Mont.

Pres., F. M. Kerr. *V. P.* and *Gen. Mgr.*, F. W. Bird. *Sec.* and *Asst. Treas.*, S. P. Hogan. *Treas.*, J. R. Thomas. *Supt.*, M. E. Buck. *Pur. Agt.*, W. T. Jackson. *Ch. Chem.*, E. M. Parkin. *Ch. Engr.*, H. H. Cochrane. *Plant* in Montana. *Capacity*, 16,000.

Gladewater Gasoline Co., P. O. Box 775, Gladewater, Tex.

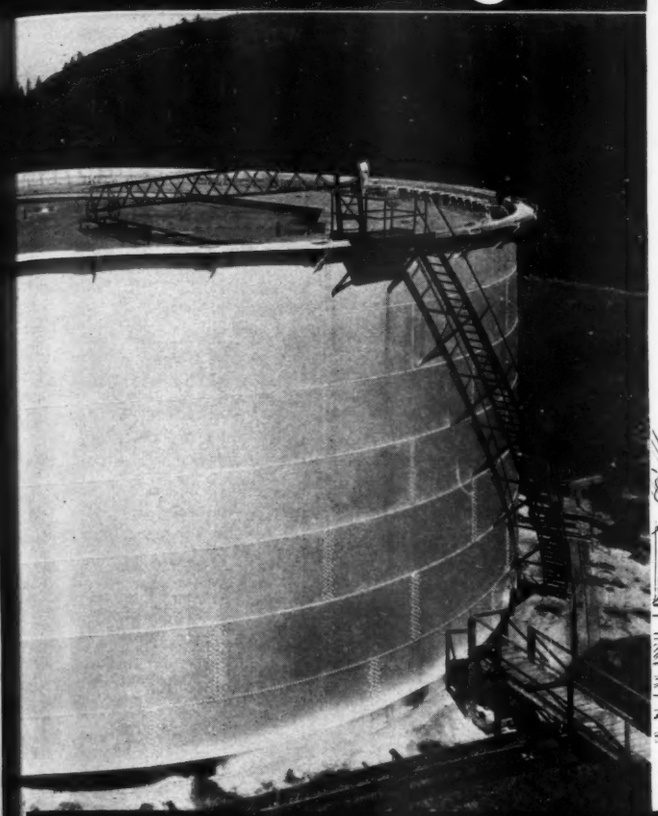
Pres., C. R. Starnes. *Sec.* and *Treas.*, E. L. Ames. *Gen. Supt.*, W. G. Maness. *Sales Mgr.*, W. C. McCallion. *Plant* in Texas. *Capacity*, 5,000 (shut down).

Glen Rose Gasoline Co., Shreveport, La.

Pres., M. H. Marr. *V. P.*, P. M. Raigorodsky. *Treas.*, D. L. Perkins. *Gen. Supt.*, Paul Schaefer. *Sales Mgr.*,

(Continued on Page 102)

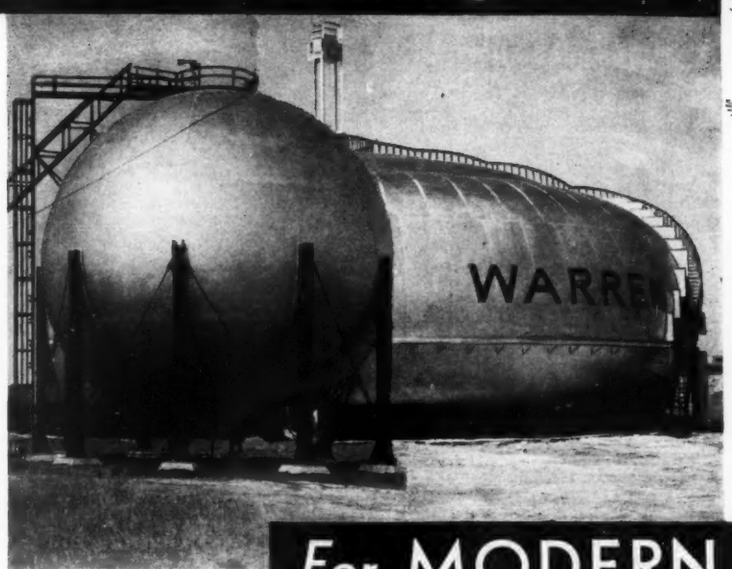
Blending...



For HIGH VOLATILITY *Blending Stock*

Use

HORTON PRESSURE STORAGE Tanks



The development of Horton Pressure Storage tanks for a complete range of capacities and pressures now make it both practical and profitable to use pressure storage for natural and refinery gasolines even where blending operations are conducted on the most modest scale. The HORTONSPHEROID is recommended for pressures up to 25 lbs. per sq. in., and is widely used for the storage of natural gasoline. The HORTONSPHERE is used for pressures above 25 lbs. per sq. in. It is recommended for storage of the more volatile grades.

For MODERN TANK

CHICAGO BRIDGE & IRON COMPANY

Dallas	1441 Liberty Bank Building
Houston	2919 Main Street
Tulsa	1606 Hunt Building
Birmingham	1536 North Fiftieth Street
Chicago	2128 Old Colony Building
Detroit	1514 Lafayette Building
Cleveland	2204 Rockefeller Building
New York	3347-165 Broadway Building
Philadelphia	1615-1700 Walnut Street Building
Boston	1517 Consolidated Gas Building
San Francisco	1054 Rialto Building
Los Angeles	1423 Wm. Fox Building

FABRICATING PLANTS in Birmingham, Chicago & Greenville, Pa.

P. M. Raigorodsky. *Plant* in Louisiana. *Capacity*, 25,000.

Graham Oil & Gas Co., P. O. Box 629, Graham, Tex.

Pres., Philip Wiseman. *V. P.s*, Harvey S. Mudd; L. W. Wicker. *Sec.* and *Treas.*, G. R. Paull. *Gen. Supt.*, G. R. Paull. *Sales Mgr.*, W. H. Anders. *Ch. Engr.*, F. F. Jones. *Plant* in Texas. *Capacity*, 8,000.

Gregg-Tex Gasoline Corp., 401 Glover-Crim Bldg., Longview, Tex.

Pres., Clark Sample. *V. P.*, Charles Cobb, Jr., Marshall, Tex. *Sec.* W. Bruner Smith. *Gen. Supt.*, C. E. Wharton. *Supt.*, H. J. DeLatin. *Plant* in Texas. *Capacity*, 100,000.

Grimes Gasoline Co., 902 Kennedy Bldg., Tulsa, Okla.

Pres., Charles W. Grimes. *Sec.* and *Treas.*, Otha H. Grimes. *Supts.*, Joe K. Gibson, Weleetka, Okla.; W. O. Kinsey, Box 533, Okemah, Okla. *Plants* in Oklahoma. *Capacity*, 10,000.

Grimes, Otha H., Kennedy Bldg., Tulsa, Okla.

Owner, Otha H. Grimes. *Supts.*, R. F. Chisolm, Box 231, Mount Pleasant, Mich.; M. V. Davies, Wetumka, Okla. *Plants* in Oklahoma and Michigan. *Capacity*, 15,500.

Grimes (Otha H.), and Roy O. Neal, Kennedy Bldg., Tulsa, Okla.

Gen. Supt., Roy O. Neal. *Sales Mgr.*, Otha H. Grimes. *Pur. Agt.*, Otha H. Grimes. *Ch. Engr.*, Roy O. Neal, *Supt.*, A. L. Cash, Box 21, Drumright, Okla. *Plant* located in Oklahoma. *Capacity*, 5,700.

Gould & Son (Nancy E.), Route 6, Butler, Pa.

Gen. Supt., Floyd B. Gould. *Ch. Engr.*, Floyd B. Gould. *Plant* in Pennsylvania. *Capacity*, 3.

Gulf Oil Corp., First National Bank Bldg., Tulsa, Okla.

V. P., Rush Greenslade. *Asst. Sec.*, D. B. Catterlin. *Asst. Treas.*, C. B. Clothier. *Gen. Supt.*, S. G. Sanderson. *Pur. Agt.*, V. C. Fuller. *Plants* in Oklahoma. *Capacity*, 63,400.

Gulf Refining Co., Gulf Bldg., Pittsburgh, Pa.

Pres., J. F. Drake. *V. P.s*, C. B. Buerger, W. V. Hartmann, B. P. Newton, H. A. Gidney. *Sec.*, W. J. Guthrie. *Treas.*, J. E. Nelson. *Plants* in Louisiana, Arkansas and Texas. *Capacity*, 72,000.

H

Hadden (James B.), Sheffield, Pa.

Plant in Pennsylvania. *Capacity*, 100.

Hanlon Gasoline Co., National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., E. I. Hanlon. *V. P.s*, D. E. Buchanan; J. H. Boyle. *Sec.* and *Treas.*, J. H. Boyle. *Gen. Supt.*, C. E. Wharton. *Sales Mgr.*, R. E. Miller. *Supt.*, A. A. Hardee, Breckenridge, Tex. *Plant* in Texas. *Capacity*, 50,000.

Hanlon Gasoline Corp. of Texas, National Bank of Tulsa Bldg., Tulsa, Okla.

Ch. of Bd., E. I. Hanlon. *Pres.*, J. H. Boyle. *V. P.*, D. E. Buchanan. *Sec.* and *Treas.*, J. H. Boyle. *Gen. Supt.*, C. E. Wharton. *Sales Mgr.*, R. E. Miller. *Ch. Chem.*, C. E. Banham. *Supt.*, C. E. Wharton, Gladewater, Tex. *Plant* in Texas. *Capacity*, 150,000.

Hapgood & Co. (R. T.), 705 Security Bldg., Charleston, W. Va.

Partnership. Sec. and *Treas.*, G. E. Tribble. *Gen. Supt.*, D. T. McClure. *Sales Mgr.*, G. E. Tribble. *Pur. Agt.*, G. E. Tribble. *Ch. Engr.*, Wiley Price. *Supt.*, Wiley Price, Cedar Grove, W. Va. *Plant* in West Virginia. *Capacity*, 5,000.

Haskell Bros., Pleasantville, Pa.

Supt., William A. Haskell. *Plant* in Pennsylvania. *Capacity*, 100.

Haskell, Roth & Bayliss, Titusville, Pa.

Supt., George E. Bayliss. *Plant* in Pennsylvania. *Capacity*, 1,000.

Henaghan & Hanlon, Inc., Sistersville, W. Va.; 718 National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., E. I. Hanlon. *V. P.*, E. V. Henaghan. *Sec.*, J. V. May. *Treas.*, M. P. Sexton. *Asst. Sec.-Treas.*, J. H. Boyle. *Sales Mgr.*, Ray E. Miller. *Gen. Supt.*, M. P. Sexton. *Plants* in West Virginia. *Capacity*, 30,000.

Henderson Co., The, 604 Oliver Eakle Bldg., Amarillo, Tex.

Pres., F. C. Henderson. *V. P.*, J. Wood Glass. *Sec.*, F. C. Hall. *Treas.*, E. P. Henderson. *Gen. Supt.*, C. C. Cherry, El Dorado, Ark. *Sales Mgr.*, F. C. Hall. *Pur. Agt.*, F. C. Hall. *Ch. Chem.*, W. R. Sever. *Ch. Engr.*, H. A. Rogers. *Supt.*, C. A. Seiple, Sanford, Tex. *Plants in* Texas and Arkansas. *Capacity*, 180,000.

Hercules Gasoline Co., Giddens-Lane Bldg., Shreveport, La.

Pres., J. B. Beaird. *V. P.*, E. R. Ratcliff. *Plant Supt.*, E. E. Debach, Kilgore, Tex. *Plant* in Texas. *Capacity*, 36,000.

Hickey & Rieg, Clarendon, Pa.

Plant in Pennsylvania. *Capacity*, 300.

Hokom, John, Oil & Gasoline Co., Ltd., 860 North Highland Ave., Los Angeles, Calif.

Plant located in California. *Capacity*, 2,500.

Honolulu Oil Corp., Ltd., 215 Market St., San Francisco, Calif.

Pres., A. C. Mattei. *V. P.s*, L. A. Cranson, W. M. Alexander, A. P. Welch, W. P. Roth. *Sec.*, R. H. Wright. *Treas.*, W. P. Roth. *Gen. Supt.*, R. R. McGuire, Box 656, Goleta, Calif. *Pur. Agt.*, O. E. Cunningham. *Ch. Chem.*, W. H. Kraft. *Supt.*, H. S. Stark, P. O. Box H, Taft, Calif. *Plants* in California. *Capacity*, 50,000.

Hope Construction & Refining Co., 545 Wm. Penn Way, Pittsburgh, Pa.

Pres., H. C. Cooper. *V. P.s*, L. L. Tonkin, J. C. Chisler. *Sec.*, S. E. W. Burnside. *Treas.*, J. C. Chisler. *Gen. Supt.*, W. B. Gribble. *Pur. Agt.*, F. O. LeRoy. *Ch. Chem.*, R. W. Miller. *Ch. Engr.*, L. L. Tonkin. *Plants* in West Virginia, Ohio and Pennsylvania. *Capacity*, 109,900 (3,600 shut down).

Huber Petroleum Co. (J. M.), Borger, Tex.

Pres., Walter David. *V. P.*, H. W. Price. *Sec.* and *Treas.*, W. H. Huber. *Gen. Supt.*, E. M. Eckhart. *Pur. Agt.*, J. O. Coolbaugh. *Ch. Engr.*, Dan McGregor. *Supt.*, D. H. Mathews, Drawer 831, Borger, Tex. *Plant* in Texas. *Capacity*, 25,000.

Humble Oil & Refining Co., Humble Bldg., Houston, Tex.

Chm. of Board, R. L. Blaffer *Pres.*, H. C. Wiess. *V.P.s*, James Anderson, Wallace E. Pratt, John R. Suman, Judge E. E. Townes. *Sec.*, F. O. Freese. *Treas.*, R. L. Blaffer. *Gen. Supt.*, J. O. Sue. *Sales Mgr.*, B. H. Brown. *Pur. Agt.*, J. A. Rowe. *Ch. Engr.*, Joe Miller. *Supts.*, H. P. Elwood, Bellville, Tex.; W. A. Hutsell, P. O. Box 127, Overton, Tex.; F. Y. LaFayette, P. O. Box 127, Overton, Tex.; W. J. McDougal, Conroe, Tex.; M. A. Mills, Drawer D, Neches, Tex.; G. C. Patterson, P. O. Box 127, Overton, Tex.; A. L. Spencer, Rising Star, Tex.; R. W. Way, P. O. Box 37, Tomball, Tex.; R. E. Buckner, P. O. Box 127, Overton, Tex. *Plants* in Texas. *Capacity*, 110,780.

I

Indian Territory Illuminating Oil Co., Bartlesville, Okla.

Pres., Burdette Blue. *V. P.'s*, W. A. Jones, R. L. Morton, A. V. Hoenig, F. R. Coates, R. L. Gordon, C. H. Caldwell. *Sec.*, E. B. Emenhiser. *Treas.*, C. H. Caldwell. *Gen. Supt.*, T. A. Stevens. *Sales Mgr.*, G. V. N. Yates. *Pur. Agt.*, C. M. Taylor. *Ch. Chem.*, Frank Allen. *Supts.*, C. D. McReynolds, H. P. Wingo, Dave Godsey, 44th St. and Oklahoma Ave., Oklahoma City. *Plants* in Oklahoma. *Capacity*, 151,000.

Inglewood Gasoline Corp., 2800 Cherry Ave., Long Beach, Calif.

Pres., C. B. Edington. *V. P.*, C. B. Edington, Jr. *Sec.* L. A. Fougler. *Gen. Supt.*, Carl Steinbeck. *Plant* located in California. *Capacity*, 6,000.

International Oil & Gas Co., Washington, Pa.

Plant in Illinois. *Capacity*, 2,000.

Italo Petroleum Corp. of America, 391 Sutter St., San Francisco, Calif.

Pres., J. W. Pauson. *V. P.*, A. J. Scampini, R. A. Earle. *Sec.*, Joseph Pensa. *Treas.*, Hugh K. McKevitt. *Plant* in California. *Capacity*, 300.

J

Jackson (Fred W.), Chicora, Pa.

Plant in Pennsylvania. *Capacity*, 360.

Jennings Bros. Co. (E. H.), 608 Columbia Bldg., Pittsburgh, Pa.

Pres., R. G. Jennings. *V. P.*, E. D. Jennings. *Sec.*, E. H. Jennings. *Treas.*, R. G. Jennings. *Plants* in Pennsylvania. *Capacity*, 2,250.

K

Kansas Power & Light Co., United Life Bldg., Salina, Kans.

Pres., D. E. Ackers. *V. P.*, C. E. Brock, Salina, Kans. *Sec.-Treas.*, H. E. Johnson, 710 N. Twelfth Blvd., St. Louis, Mo. *Plant Supt.*, H. R. Otto, Salina, Kans. *Pur. Agt.*, I. S. Stewart. *Plants* in Kansas. *Capacity* 26,000.

Kewanee Oil & Gas Co., 123 So. Broad St., Philadelphia, Pa.

Pres., William M. Potts. *Gen. Mgr.*, F. B. Howland, Titusville, Pa. *Sec.* and *Treas.*, R. B. Ashenfelter. *Gen. Supt.*, T. B. Steele, Robinson, Ill. *Plants* in Illinois. *Capacity*, 450.

L

La Salle Petroleum Co., 612 Wright Bldg., Tulsa, Okla.

Receivers, W. J. Schnur and Phil D. Williams. *Gen. Supt.*, Phil D. Williams. *Sales Mgr.*, Phil D. Williams. *Plant* in Texas. *Capacity*, 8,000 (shut down).

Lisbon Gasoline Co., Inc., 229 Ricou-Brewster Bldg., Shreveport, La.

Pres., O. J. Dykes. *V. P.*, G. W. James. *Sec.*, T. J. Heard. *Treas.*, B. R. Muirhead. *Gen. Supt.*, M. H. Trout, Box 464, Henderson, Tex. *Pur. Agt.*, O. J. Dykes. *Plants* in Texas. *Capacity*, 45,000.

Lomita Gasoline Co., Jergins Trust Bldg., Long Beach, Calif.

Pres., C. M. Cotton. *V. P.s*, A. A. Jergins, J. A. Campbell. *Sec.* and *Treas.*, F. S. Wade. *Gen. Supt.*, L. V. Cassaday. *Sales Mgr.*, L. V. Cassaday. *Pur. Agt.*, J. Bucklin. *Ch. Engr.*, J. A. Campbell. *Supts.*, J. H. Clark, Box 851, Long Beach, Calif.; M. S. Hubbell, Route 2, Box 522, Bakersfield, Calif. *Plants* in California. *Capacity*, 70,000.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex.

Pres., L. B. Denning. *V. P.s*, R. A. Crawford, D. A. Hulcy, F. L. Chase, E. F. Schmidt. *Sec.* and *Treas.*, D. L. Cobb. *Gen. Supt.*, J. R. Jarvis. *Sales Mgr.*, A. F. Garrett. *Pur. Agt.*, B. R. Newbery. *Ch. Chem.*, Paul C. Coffin. *Ch. Engr.*, J. L. Foster. *Supts.*, J. M. Phillips, Petrolia, Tex.; F. H. Townsend, Gordon, Tex.; J. E. Johnson, R.F.D. No. 1, Cisco, Tex.; H. C. Wells, Hollis, Okla.; J. M. Kindle, Box 236, Trinidad, Tex.; G. H. King, Box 488, Ranger, Tex.; J. T. Hubbard, Box 537, Rising Star, Tex. *Plants* in Texas and Oklahoma. *Capacity*, 86,000 (9,000 shut down).

Lone Star Gasoline Co., 1915 Wood St., Dallas, Tex.

Pres., L. B. Denning. *V. P.s*, F. L. Chase, D. A. Hulcy, E. F. Schmidt *Sec.* and *Treas.*, D. L. Cobb. *Gen. Supt.*, J. R. Jarvis. *Sales Mgr.*, A. F. Garrett. *Pur. Agt.*, B. R. Newbery. *Ch. Chem.*, Paul C. Coffin. *Ch. Engr.*, J. L. Foster. *Supts.*, Harry Wheeldon, Box 788, Ranger, Tex.; J. A. Bates, Box 1452, Breckenridge, Tex. *Plants* in Texas. *Capacity*, 116,500.

Los Nietos Producing & Refining Co., Ltd., 714 W. Olympic Blvd., Los Angeles, Calif.

Pres., Mrs. C. E. Doheny. *V. P.'s*, R. M. Sands, C. W. Smith, R. S. Lytle. *Sec.*, G. W. Johnson, Jr. *Treas.*, Olin Wellborn, III. *Gen. Supt.*, George L. Thompson, Bin J, Avenal, Cal. *Plant* in California. *Capacity*, 100,000.

Louisiana Iron & Supply Co., 2900 Mansfield Road, Shreveport, La.

Pres., Sam Y. Dorfman. *V. P.*, Sam Sklar. *Sec.* and *Treas.*, Sam Sklar. *Gen. Supt.*, G. R. Perry, Louann, Ark. *Sales Mgr.*, G. R. Perry. *Pur. Agt.*, P. R. Walker. *Ch. Chem.*, C. C. Snider. *Ch. Engr.*, C. C. Snider. *Plant* in Arkansas. *Capacity*, 4,000.

Louisville Gas & Electric Co., 311 W. Chestnut St., Louisville, Ky.

Pres., T. B. Wilson. *V. P.*, A. W. Lee. *Sec.*, J. J. McKenna. *Gen. Supt.*, J. A. Yunker. *Pur. Agt.*, G. Davies. *Supt.*, H. D. Robb, Winchester, Ky. *Plant* in Kentucky. *Capacity*, 2,500.

Mc

McBride, Inc. (W. C.), 2101 Missouri Pacific Bldg., St. Louis, Mo.

Pres., B. O. Mahaffey. *V. P.*, C. F. Buchner. *Sec.* and *Treas.*, E. R. Christman. *Gen. Supt.*, J. B. Crisman. *Ch. Engr.*, H. L. Crisman. *Supt.*, E. R. Davis, Avant, Okla. *Plant* in Oklahoma. *Capacity*, 1,500.

McPherson Oil & Gas Development Co., United Life Bldg., Salina, Kans.

Pres., D. E. Ackers. *V. P.s*, C. E. Brock, Allen Van Wyck, W. D. Gale. *Sec.-Treas.*, H. E. Johnson. *Pur. Agt.*, I. S. Stewart. *Plant* in Kansas. *Capacity*, 10,000.

M

Magnolia Petroleum Co., Magnolia Bldg., Dallas, Tex.

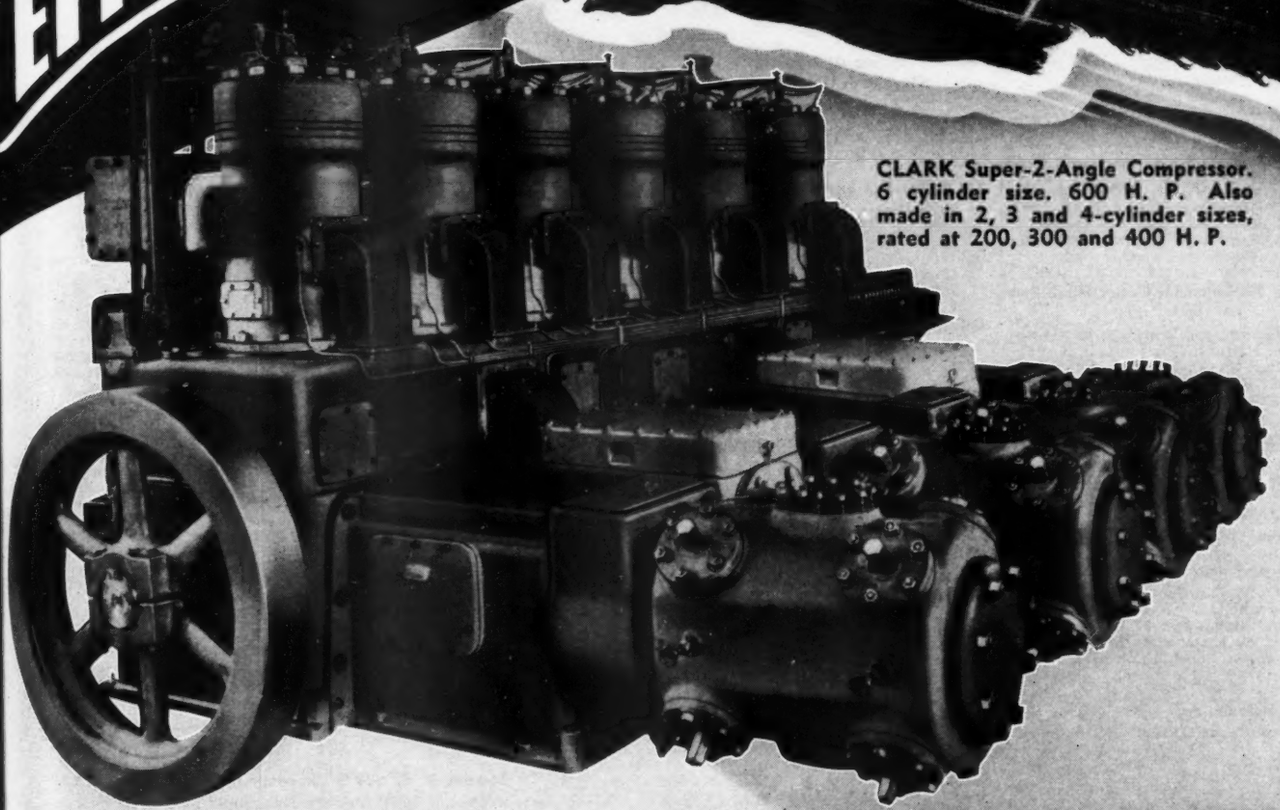
Pres., D. A. Little. *V. P.'s*, L. S. Sinclair, W. H. Francis, M. J. McLaughlin, T. J. Fitch, F. M. Lege, Jr., E. E. Swope, C. L. Gladden, J. C. Stephens. *Sec.*, G. L. Tate. *Treas.*, W. L. Holmes. *Gen. Supt.*, R. D. Hanley. *Sales Mgr.*, F. M. Lege, Jr. *Pur. Agt.*, J. P. David. *Ch. Chem.*, H. L. Baker. *Ch. Engr.*, C. V. Edwards, Jr. *Supts.*, O. B. Zeek, Box 838, Electra, Tex.; W. B. January, Drawer M, Olden, Tex.; J. A. Upton, Box 668, Healdton, Okla.; C. L. Simmons, Box 310, Kermit, Tex.; J. F. Lewis, Drawer D, Olton, Okla.; M. C. Aker, Box 77, St. Louis, Okla.; V. L. Dickinson, Box 1382, Pampa, Tex.; Hugh Erwin, Box 539, Stonewall, Okla.; Guy E. Cox, Box 231, El Dorado, Ark. *Plants* in Texas, Oklahoma, Arkansas and Louisiana. *Capacity*, 172,700 (15,500 shut down).

(Continued on Page 106)

Gas Booster Station!

SUPER 2 ANGLE

EFFICIENCY



CLARK Super-2-Angle Compressor. 6 cylinder size. 600 H. P. Also made in 2, 3 and 4-cylinder sizes, rated at 200, 300 and 400 H. P.

CLARK

Mahutska Oil Co., Robinson, Ill.

Pres., Alex U. McCandless. *V. P.*, L. G. Niehoff. *Sec.* John A. Byerly. *Treas.*, L. G. Niehoff. *Gen. Supt.*, Frank B. Barnes. *Sales Mgr.*, Alex U. McCandless. *Pur. Agt.*, Frank B. Barnes. *Ch. Chem.* and *Engr.*, Alex U. McCandless. *Supts.*, S. H. Correll, R.F.D. 2, Robinson; Fred Boyd, R.F.D., Oblong. *Plant* in Illinois. *Capacity*, 300.

Manhattan Gasoline Co., 1204 Alamo National Bldg., San Antonio, Tex.

Pres., Garland Clymore. *Asst. Mgr.*, H. L. McQuiston. *Sec.*, B. S. Fenlaw. *Treas.*, R. C. Willett. *Gen. Supt.*, R. S. Wyrick, Refugio, Tex. *Ch. Chem.*, V. A. Goss. *Ch. Engr.*, W. R. Hounsell. *Plant* in Texas. *Capacity*, 12,000.

Marr Natural Gasoline Co., 516 Peoples National Bank Bldg., Tyler, Tex.

Pres., Jack Marr. *V. P.*, W. O. Stowell. *Sec.* and *Treas.*, F. J. Morris. *Sales Mgr.*, F. J. Morris. *Pur. Agt.*, W. O. Stowell. *Ch. Engr.*, W. O. Stowell. *Supt.*, W. O. Stowell, Box 482, Henderson, Tex. *Plant* in Texas. *Capacity*, 5,000.

Mars Co., The, 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, A. C. Burweli. *Sec.* and *Treas.*, H. S. Rose. *Sales Mgr.*, C. P. Garvey. *Pur. Agt.*, M. J. Connor. *Ch. Chem.*, J. R. Fay. *Ch. Engrs.*, W. C. McDonald, Venus, Pa.; J. O. Clark, Lewis Run, Pa.; W. E. Huggler, Van, Pa.; N. C. Gifford, Box 44, Clarion, Pa.; E. L. Betz, Endeavor, Pa. *Plants* in Pennsylvania. *Capacity*, 21,300 (9,800 shut down).

Melrose Oil & Gas Co., F. & P. Bank Bldg., Sistersville, W. Va.

Pres., Neal K. Wilson, Cuba, N. Y. *V. P.*, John P. Flynn. *Sec.*, Louis N. Thomas, Fort Worth, Tex. *Treas.*, Neal K. Wilson. *Gen. Supt.*, R. U. Adams, Sistersville, W. Va. *Supts.*, Claude H. Gorby, Sistersville, W. Va.; S. M. Tallurace, Middlebourne, W. Va. *Plants* in West Virginia. *Capacity*, 50.

Mid-Continent Petroleum Corp., Cosden Bldg., Tulsa, Okla.

Pres., Jacob France. *V. P.*, G. O. Moody. *Asst. Sec.*, A. D. Kneale. *Treas.*, Charles Klein. *Gen. Supt.*, F. E. Kearney. *Pur. Agt.*, C. A. Prichard. *Supts.*, F. C. Bach, Route 3, Box 85-A, Bristow, Okla.; Ed. Burgess, Box 97, Leonard, Okla.; R. H. Corbin, Box 387, Morris, Okla.; J. A. Blakemore, Box 788, Cromwell, Okla.; C. C. Wolford, Box 11, Stroud, Okla. *Plants* in Oklahoma. *Capacity*, 93,000.

Mohawk Petroleum Co., 806 Financial Center Bldg., San Francisco, Calif.

V. P.'s, Alfred L. Marsten, Jr., Edwin V. McKenzie. *Sec.* and *Treas.*, J. P. Halford. *Gen. Supt.*, J. A. Robinson. *Sales Mgr.*, Carl Stevenson. *Pur. Agt.*, V. K. Douglas. *Supt.*, J. A. Robinson, Box 1476, Bakersville, Calif. *Plant* in California. *Capacity*, 10,000.

Montgomery (J. B.), McKees Rocks, Pa.

Sec., Bert Noble. *Treas.*, S. H. Morgan. *Ch. Engr.*, A. A. Bock. *Plant* in Pennsylvania. *Capacity*, 100.

Moore, Way & Harrison, Titusville, Pa.

Plant in Pennsylvania. *Capacity*, 150.

Mountain States Oil Corp., Kellog Bldg., Trinidad, Colo.

Pres., C. W. Barnholt. *V. P.'s*, John E. Daley, H. G. Stevenson, E. A. Barnholt. *Sec.*, H. G. Stevenson. *Treas.*, C. W. Barnholt. *Gen. Supt.*, H. G. Stevenson, Trinchera. *Sales Mgr.*, E. A. Barnholt. *Pur. Agt.* and *Ch. Engr.*, H. G. Stevenson. *Plant* in Colorado. *Capacity*, 6,000.

Myers Bros. & Hazzard, Tidioute, Pa.

Plant in Pennsylvania. *Capacity*, 100.

N

National Gasoline Co., Grand Valley, Pa.

Plants in Pennsylvania. *Capacity*, 500.

National Products Co., 1510 Commonwealth Bldg., Pittsburgh, Pa.

Pres., F. W. Finley. *V. P.'s*, H. S. Cohen, H. M. Brown. *Sec.* and *Treas.*, M. E. Eberle. *Gen. Supt.*, H. A. Frame, Tulsa, Okla. *Plant* in Oklahoma. *Capacity*, 1,550.

Natural Gasoline Corp., National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., W. K. Warren. *V. P.'s*, J. A. LaFortune, M. E. Mockley. *Sec.*, H. E. Felt. *Treas.*, A. J. Murphy. *Gen. Supt.*, M. E. Mockley. *Pur. Agt.*, P. J. Hoagland. *Ch. Engr.*, H. W. Harts. *Supts.*, W. H. Williams, Box 686, Healdton, Okla.; F. E. Thompson, Drawer C, Fry, Tex.; L. D. Parker, Box 37, Harjo, Okla.; Ray Eaton, R. 8, Box 243, Oklahoma City, Okla.; J. W. Kearney, Box 67, Monument, N. Mex.; Arnold Evans, Box 157, Galva, Kans. *Plants* in Oklahoma, Texas, New Mexico and Kansas. *Capacity*, 185,000 (25,000 shut down).

Neal Gasoline Co., 510 Atlas Life Bldg., Tulsa, Okla.

Pres., Roy O. Neal. *Treas.*, H. B. Neal. *Gen. Supt.*, L. W. Blair. *Pur. Agt.*, Roy O. Neal. *Supts.*, L. W. Blair, Box 186, Osage, Okla.; Frank Hamilton, Copan, Okla. *Plants* in Oklahoma. *Capacity*, 5,500 (1,200 shut down).

Nolan and Lamberton, 212 S. Olympia, Tulsa, Okla.

Partnership, Nolan Oil & Gas Co., Chanute, Kans., and J. S. Lamberton, Tulsa, Okla. *Supt.*, W. E. Russell, R. 2, Oblong, Ill. *Plant* in Illinois. *Capacity*, 100.

North Penn Gas Co., 103 Mill St., Port Allegany, Pa.

Pres., C. I. Crippen. *V. P.*, J. H. Isherwood. *Sec.*, J. C. Forsyth. *Treas.*, C. R. Beddows. *Plant* in Pennsylvania. *Capacity*, 600 (shut down).

Norwalk Co., The, 634 South Spring St., Los Angeles, Calif.

Pres., Lionel T. Barneson. *V. P.'s*, H. J. Barneson, J. L. Barneson. *Sec.*, W. E. Kropp. *Gen. Mgr.*, L. L. Aubert. *Asst. to Gen. Mgr.*, H. M. Paulsen. *Pur. Agt.*, John C. Penn. *Supts.*, K. E. Grigsby, Box O, Santa Fe Springs, Cal.; Jack Brennan, Box 688, Maricopa, Calif. *Plants* in California. *Capacity*, 70,000.

O

Ohio Oil Co., The, Donnell Bldg., Findlay, Ohio.

Pres., O. D. Donnell. *V. P.'s*, C. L. Fleming; John McFayden, G. E. McCullough, F. R. Clark, W. W. Fleming. *Sec.*, E. B. Redpath. *Treas.*, F. A. Billstone. *Pur. Agt.*, Clark Sherk. *Supts.*, E. B. Charlton, Shreveport, La.; J. R. Thorpe, Robinson, Ill.; Herman Brunt, Casper, Wyo.; S. A. Smith, Los Angeles, Calif.; W. E. Smith, Eliasville, Tex.; G. M. Cook, Bristow, Okla. *Plants* in Louisiana, Illinois, Wyoming, California, Texas and Oklahoma. *Capacity*, 71,361 (3,600 shut down).

Ohio Producing & Refining Co., The, 1405 E. Sixth St., Cleveland, Ohio

Pres., John J. McMahon. *V. P.*, W. G. Hagan. *Sec.* and *Treas.*, W. G. Rogers. *Gen. Supt.*, C. F. Turner. *Pur. Agt.*, A. J. Hattwich. *Ch. Chem.*, C. F. Turner. *Plant* in Ohio. *Capacity*, 6,000.

Oil & Gas Co., The, Julian St., Parkersburg, W. Va.

Pres., Reese Blizzard. *V. P.'s*, C. M. Bennett, A. D. Ireland. *Sec.* and *Treas.*, Ross Wells. *Gen. Supt.*, W. O. Wells, Harrisville, W. Va. *Sales Mgr.*, Ross Wells. *Pur. Agt.*, Ross Wells. *Ch. Engr.*, Ira Williams, Harrisville, W. Va. *Plant* in West Virginia. *Capacity*, 250.

Oil State Gasoline Co., Howard Bldg., Tulsa, Okla.

Pres., Oscar R. Howard. *V. P.*, Charles W. Stepp. *Sec.*, W. J. Zollinger. *Treas.*, Oscar Howard. *Gen. Supt.*, Charles W. Stepp. *Sales Mgr.*, W. J. Zollinger. *Supts.*, Lain Garrison, Jenks, Okla.; C. W. Stepp, Yale, Okla. *Plants* in Oklahoma. *Capacity*, 8,000.

Oklahoma Gasoline Plants, Inc., Box 896, Sapulpa, Okla.

Pres., L. B. Jackson. *V. P.*, E. E. Thompson. *Sec.*, Wm. Maurer. *Treas.*, R. J. Ranck. *Gen. Supt.*, E. E. Thompson, Box 707, Drumright, Okla. *Plant* in Oklahoma. *Capacity*, 10,000.

Oklahoma Utilities Co., 123 W. Seventh St., Bristow, Okla.

Pres., C. D. Perry. *V. P.*, R. W. Booze. *Sec.* and *Treas.*, J. A. Staples, Jr. *Gen. Supt.*, R. C. Poage. *Pur. Agt.*, V. L. Wilson. *Supt.*, A. C. Wright. *Plant* in Oklahoma. *Capacity*, 5,000.

Owens, Libbey-Owens, Gas Department, P. O. Box 1375, Charleston, W. Va.

Pres., W. E. Spalding. *Gen. Supt.*, Fred F. Ketchum. *Sales Mgr.*, Fred F. Ketchum. *Pur. Agt.*, L. L. Kohlbecker. *Ch. Engr.*, W. B. Strong. *Plant* in West Virginia. *Capacity*, 10,000.

P

Pacific Western Oil Corp., 1060 Subway Terminal, Los Angeles, Calif.

Pres., Wm. G. Skelly. *V. P.s*, H. M. Macomber; E. Kluth. *Sec.*, Chas. F. Krug, Jr. *Treas.*, H. L. Rowland. *Gen. Supt.*, Ben A. Koehler. *Pur. Agt.*, Chas. A. Jackson. *Ch. Engr.*, W. F. Crane. *Supts.*, J. B. Norton, Goleto, Calif.; B. S. Anderson, Ventura, Calif. *Plants* in California. *Capacity*, 27,000.

Pala Oil Co., Inc., 327 Atkins Ave., Shreveport, La.

Pres., F. L. Wiegand. *V. P.*, J. M. Post. *Sec.* and *Treas.*, T. M. Hope. *Gen. Supt*, C. P. Hanlen, Mooringsport, La. *Plant* in Louisiana. *Capacity*, 300 (shut down).

Panhandle Eastern Pipe Line Co., 101 W. Eleventh St., Kansas City, Mo.

Pres., Joe D. Creveling. *V. P.*, Burt R. Bay. *Sec.*, Leith V. Watkins. *Treas.*, Louis F. Sperry. *Gen. Supt.*, George T. Koch. *Pur. Agt.*, S. A. Taylor. *Plant* in Kansas. *Capacity*, 30,000.

Parade Gasoline Co., Inc., 421 Commercial National Bank Bldg., Shreveport, La.

Pres., J. B. Atkins. *V. P.s*, D. P. Hamilton, H. L. Hunt. *Sec.* and *Treas.*, Roy Lee. *Asst. Sec.* and *Treas.*, R. A. Worley. *Gen. Supt.*, Earl L. Clover, Box. 528, Overton, Tex. *Sales Mgr.*, J. B. Atkins. *Pur. Agt.*, Earl L. Clover. *Ch. Chem.*, E. A. Slade. *Ch. Engr.*, B. G. Harbison. *Plant* in Texas. *Capacity*, 100,000.

Pep Gasoline Co., 6247 Brookside Blvd., Kansas City, Kans.

Pres., James O. Bruen. *Treas.*, E. W. Pruen. Gen. *Mgr.*, E. W. Bruen. *Plant* in Kansas. *Capacity*, 1,800 (shut down).

Peppers Gasoline Co., Box 86, Oklahoma City, Okla.

Pres., Charles C. Peppers. *Sec.* and *Treas.*, H. H. Champlin. *Gen. Supt.*, J. C. McConnico. *Plant* in Oklahoma. *Capacity*, 5,000.

Phillips Petroleum Co., Phillips Bldg., Bartlesville, Okla.

Pres., Frank Phillips. *V. P.'s*, W. N. Davis, G. G. Oberfell, H. E. Koopman, C. P. Dimit, M. P. Youker, F. E. Rice, J. M. Sands, C. R. Musgrave, H. A. Trower, George R. Baker. *Sec.* and *Asst. Treas.*, B. F. Stradley. *Treas.* and *Asst. to Pres.*, K. S. Adams. *Gen. Supt.*, F. S. Gleason. *Sales Mgr.*, A. M. Hughes. *Pur. Agt.*, H. E. Koopman. *Ch. Engr.*, A. H. Riney. *Dist. Supts.*, Oklahoma, E. L. Utsinger, Bartlesville, Okla.; Western, A. W. Paris, Box 666, Crane, Tex.; Panhandle, Rex McRoy, Box 358, Whittenburg, Tex.; Pampa, Tex.; John Rickard, Route 2, Pampa, Tex.; Central Texas, L. B. Wood, Box 1332, Breckenridge, Tex. *Supts.*, R. K. McConnell, Box 989, Oklahoma City, Okla.; J. P. Weatherall, Box 4-A, R. 1, Kaw, Okla.; Carl Fisher, Box 265, Edmond, Okla.; L. V. Miller, Box 37, Bryant, Okla.; L. P. Clarke, Drawer B, Snomac, Okla.; J. H. Oliver, 1329 N. Okmulgee, Okmulgee, Okla.; O. A. Carter, Box 88, Pershing, Okla.; R. L. Ford, Box 517, Fairfax, Okla.; C. E. Thomas, Box 967, Wetumka, Okla.; R. L. Stewart, Box 60, Wewoka, Okla.; W. W. Ford, Box 379, Eunice, New Mex.; A. C. Brock, Drawer PP, Hobbs, New Mex.; J. L. Carroll, Box 66, Penwell, Tex.; W. D. Kirkpatrick, Box 666, Crane, Tex.; A. F. Lasater, Box 358, Whittenburg, Tex.; H. M. Rapp, Box 358, Whittenburg, Tex.; C. A. Thorne, Box 358, Whittenburg, Tex.; O. J. Brazil, Box 358, Whittenburg, Tex.; J. E. Thompson, Box 358, Whittenburg, Tex.; Walter Beets, Box 358, Whittenburg, Tex.; E. R. Martin, Box 358, Whittenburg, Tex.; B. V. Wallis, Box 358, Whittenburg, Tex.; C. Heironimus, Route 2, Pampa, Tex.; Homer Gibson, Route 2, Pampa, Tex.; H. F. Magerkurth, Route 2, Pampa, Tex.; E. E. Traywick, Route 2, Pampa, Tex.; W. C. Boatwright, Route 2, Pampa, Tex.; John Rickard, Route 2, Pampa, Tex.; J. F. Waters, Eliasville, Tex.; J. F. Steed, Frankell, Tex.; F. B. Joyce, Box 507, Pioneer, Tex.; J. M. Williams, South Bend, Tex.; R. C. Mason, Ibex, Tex.; J. K. Gibson, Box 177, Pasadena, Tex. *Plants* in Oklahoma, Texas and New Mexico. *Capacity*, 1,311,500.

Pittsburgh Oil & Gas Co., 1005 Farmers Bank Bldg., Pittsburgh, Pa.

Pres., E. B. Reeser. *V. P.s*, James Dunn, D. L. Frawley. *Sec.*, James A. Dunn. *Treas.*, John T. Furlong. *Gen. Supt.*, H. R. Jackson. *Pur. Agt.*, H. R. Jackson. *Supts.*, R. A. Bookman, Schley, Washington County, Ohio; V. P. Stover, Sycamore Valley, Ohio; C. R. Jeannerat, 94 Third St., Clarion, Pa.; W. M. Holly, 572 Second St., Butler, Pa.; C. A. Cousten, Middlebourne, W. Va.; Arthur Cousten, Macfarlan, Ritchie County, West Virginia; A. J. Schlosser, Petroleum Bldg., Tulsa, Okla. *Plants* in Ohio, Pennsylvania, West Virginia and Oklahoma. *Capacity*, 5,950 (1,500 shut down).

Powers and Quinlan, 624 S. Cheyenne, Tulsa, Okla.

Partners, M. F. Powers and Felix Quinlan, Jr. *Pur. Agt.*, F. George Heinze. *Supt.*, Felix Quinlan, Jr., Box 696, Beggs, Okla. *Plants* in Oklahoma. *Capacity*, 1,000.

Powers, M. F., 624 S. Cheyenne, Tulsa, Okla.

Owner, M. F. Powers. *Gen. Supt.*, F. George Heinze. *Pur. Agt.*, F. George Heinze. *Supt.*, L. E. Flanagan, Box 136, Depew, Okla. *Plant* in Oklahoma. *Capacity*, 3,000.

President Oil Co., Emlenton, Pa.

Pres., H. J. Crawford. *V. P.*, T. P. Gregory. *Sec.-Treas.*, J. E. Taylor. *Gen. Supt.*, J. S. Beals. *Supts.*, F. G. McCord, Emlenton, Pa.; S. Smith, Venus, Pa.; Lloyd L. Henry, Parker, Pa. *Plants* in Pennsylvania. *Capacity*, 600.

Preston Oil Co., The, Kanawha Valley Bldg., Charleston, W. Va.

Pres., Charles A. Munroe. *V. P.s*, Don M. Wilson, Charles F. Huff, Ralph N. Parks. *Sec.*, William M. Falion. *Treas.*, N. E. Shupe. *Sales Mgr.*, Robert M. Clark. *Gen. Supt.*, Roy A. Schuster. *Supts.*, Lee Myers, R.F.D. No. 2, Summerfield, Ohio; J. J. Woodruff, Box 304, Medina, Ohio; J. W. Dumbaugh, Pavonia, Ohio; W. P. Calley, Sugar Grove, Ohio; L. A. Chrisman, Homer, Ohio. *Plants* in Ohio. *Capacity*, 41,000.

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Pure Oil Co., The, 35 E. Wacker Drive, Chicago, Ill.

Pres., Henry M. Dawes. *V. P.s*, R. W. McIlvain, C. B. Watson, N. H. Weber. *Sec.*, L. S. Wescoat. *Treas.*, Rawleigh Warner. *Gen. Supt of Plants* (Okla. and Tex.), W. L. McCarty. *Sales Mgr.*, R. H. McElroy, Jr. *Pur. Agt.*, G. L. Parsons. *Ch. Chem.*, C. R. Wagner. *Supts.*, Cole M. Downing, Box 1277, Drumright, Okla.; Robert Burris, Box 1127, Oilton, Okla.; H. A. Horner, Box 484, Depew, Okla.; J. E. McCurry, Box 667, Seminole, Okla.; Jack Swift, Box 106, Dawes, W. Va.; John Prater, Box 22-J, Van, Tex. *Plants* in Oklahoma, West Virginia and Texas. *Capacity*, 45,550.

R

Red Brush Oil Co., 10 Walnut St., Tidioute, Pa.

Sec. and *Treas.*, C. E. Gesin. *Gen. Mgr.*, C. E. Gesin. *Ch. Engr.*, Carl Sibble, Tionesta, Pa. *Plant* in Pennsylvania. *Capacity*, 40.

Reno Oil Co., Wells Bldg., Sistersville, W. Va.

Pres., J. P. Flynn. *V. P.*, T. B. Gregory. *Sec.-Treas.*, W. R. Reitz. *Gen. Supt.* and *Pur. Agt.*, J. P. Flynn. *Supts.*, A. C. Mercer, Ellenboro, W. Va.; John McGuirk, R.F.D., Harrisville, W. Va.; Otto Woodburn and S. G. Hissam, R.F.D., Sistersville, W. Va.; C. E. Eddy, Wade, Ohio. *Plants* in West Virginia and Ohio. *Capacity*, 312.

Reserve Gas Co., 545 Wm. Penn Way, Pittsburgh, Pa.

Pres., J. French Robinson. *V. P.*, G. A. Kinley. *Sec.*, S. E. W. Burnside. *Treas.*, J. C. Chisler. *Gen. Supt.*, W. B. Gribble. *Pur. Agt.*, F. O. LeRoy. *Ch. Chem.*, R. W. Miller. *Ch. Engr.*, L. L. Tonkin. *Plant* in West Virginia. *Capacity*, 20,000.

Rice Ranch Oil Co., 124 West 4th St., Los Angeles, Calif.

Pres., J. C. Netz. *V. P.'s*, Emil Kirchner, F. H. Powell. *Sec.*, I. M. Hine. *Gen. Supt.*, George Holmes, Box 38, Santa Maria, Calif. *Plant* in California. *Capacity*, 6,000.

Richfield Oil Corp., 555 S. Flower St., Los Angeles, Calif.

Pres., Charles S. Jones. *V. P.*, A. M. Kelley. *Treas.*, M. R. Gross. *Sec.*, Morgan W. Lowery. *Plants* in California. *Capacity*, 60,000 (30,000 shut down).

Riddle Farm Oil Co., Karns City, Pa.

Plant in Pennsylvania. *Capacity*, 50.

Ritzert Bros., Chicora, Pa.

Plant in Pennsylvania. *Capacity*, 70.

Rodessa Gasoline Co., Shreveport, La.

Pres., J. H. Gwin. *Gen. Supt.*, A. P. Young, Ida, La. *Plant* in Louisiana. *Capacity*, 10,000.

Roeser & Pendleton, Inc., 613 Fort Worth Club Bldg., Fort Worth, Tex.

Pres., Charles F. Roeser. *V. P.'s*, Marshall R. Young, T. T. Pendleton. *Sec.*, A. M. Brackett. *Treas.*, Marshall R. Young. *Asst. Sec.*, P. R. Walker. *Gen. Supt.*, M. R. Young. *Sales Mgr.*, A. M. Brackett. *Pur. Agt.*, A. M. Brackett. *Ch. Chem.*, R. C. Hammock. *Ch. Engr.*, R. C. Hammock. *Supt.*, R. C. Hammock, Albany, Tex. *Plants* in Texas. *Capacity*, 45,000 (15,000 shut down).

S

Sabine Valley Gasoline Co., Inc., 525 First National Bank Bldg., Shreveport, La.

Pres., H. R. Dickerson. *V. P.*, Laurice W. Dickerson. *Sec.*, W. D. Wilson. *Treas.*, H. R. Dickerson. *Gen. Supt.*, D. E. Farris, Box 1267, Longview, Tex. *Ch. Engr.*, H. H. Beeson. *Plant* in Texas. *Capacity*, 40,000.

Sand Hill Lease, Tidioute, Pa.

Partnership. Supt., Ralph McIntire, R.F.D. 2, Tidioute, Pa. *Plant* in Pennsylvania. *Capacity*, 100.

Say (George K.), Estate, R.F.D. 2, Karns City, Pa.

Sec.-Treas., Bertha E. Say. *Plant* in Pennsylvania. *Capacity*, 40.

Shamrock Oil & Gas Corp., The, Amarillo Bldg., Amarillo, Tex.

Pres., John J. Sheerin. *V. P.'s*, R. T. Wilson, H. C. Fownes, II. *Sec.*, J. B. Orr. *Treas.*, H. C. Fownes, II. *Gen. Mgr.*, R. B. Day. *Ch. Chem.*, C. E. Gregg. *Supts.*, Samuel S. Allender, Sunray, Tex.; H. U. Cook, Lefors, Tex. *Plants* in Texas. *Capacity*, 66,000.

Shell Oil Co., 100 Bush St., San Francisco, Calif.

Pres., S. Belither. *V. P.'s*, D. Heggie. E. F. Davis, G. H. Van Senden, W. P. Durkee, J. V. Stair. *Sec.* A. R. Bradley. *Treas.*, D. Heggie. *Pur. Agt.*, J. S. Story. *Gen. Supt. of Gaso. Plants*, Robert Tulin. *Plants* in California. *Capacity*, 274,500.

Shell Petroleum Corp., Shell Bldg., St. Louis, Mo.

Pres., Alexander Fraser. *V. P.s*, A. J. Galloway; T. E. Swigart. *Sec.*, C. S. Gentry. *Treas.*, J. W. Watson. *Gen. Supt.*, S. S. Smith. *Pur. Agt.*, C. B. Singleton. *Supts.*, Joe Robinson, Box 26, Greenwich, Kans.; S. W. Craig, Marland, Okla.; S. U. Young, Box 548, Wilson, Okla.; R. H. Medler, Box 549, Drumright, Okla.; C. E. Haines, Box 78, Orlando, Okla.; C. J. Goldston, R. No. 2, Pampa, Tex.; M. R. Church, Box 338, Skellytown, Tex.; J. L. May, Box 1, Iowa, La. *Plants* in Kansas, Oklahoma and Texas. *Capacity*, 134,000 (22,500 shut down).

Signal Oil & Gas Co., 811 West Seventh St., Los Angeles, Calif.

Pres., S. B. Mosher. *V. P.'s*, R. H. Green, O. W. March. *Sec.*, H. J. March, *Treas.*, O. W. March. *Gen. Supt.*, R. H. Green. *Pur. Agt.*, J. F. Thies. *Ch. Engr.*, G. L. Young. *Supts.*, R. W. Heath, Long Beach, Calif.; W. Greenfield, Long Beach, Calif. *Plants* in California. *Capacity*, 120,000 (15,000 shut down).

Signal Hill Gasoline Co., 555 S. Flower St., Los Angeles, Calif.

Pres., R. W. Walsh. *V. P.s*, A. M. Keeley, R. D. Montgomery, J. S. Wallace. *Sec.* and *Treas.*, B. B. Wilson. *Mgr.*, H. R. Linhoff. *Pur. Agt.*, B. J. Mahaffy. *Chem.*, Edgar Valby. *Ch. Engr.*, M. L. Arnold. *Supts.*, C. E. Gotterba, Box 470, Long Beach, Calif.; I. M. Bumgardner, Box "K," Taft, Calif. *Plants* in California. *Capacity*, 118,000 (60,000 shut down).

Silurian Oil Co., Missouri Pacific Bldg., St. Louis, Mo.

Pres., B. O. Mahaffey. *V. P.*, C. F. Buchner. *Sec.-Treas.*, E. R. Christman. *Gen. Supt.*, Dee Miller. *Ch. Engr.*, R. E. Hilpert. *Supt.*, E. O. Bishop, Avant, Okla. *Plant* in Oklahoma. *Capacity*, 1,200.

Sinclair Prairie Oil Co., Box 521, Tulsa, Okla.

Pres., H. L. Phillips. *V. P.*, W. W. Baker. *Sec.* and *Treas.*, A. E. Barrus. *Gen. Supt.*, C. L. Brown. *Sales Mgr.*, A. T. Scherer. *Pur. Agt.*, H. A. Woodward. *Ch. Chem.*, J. L. Gallagher. *Ch. Engr.*, E. A. Wooden. *Supts.*, George H. Youker, R.F.D. No. 1, Drumright, Okla.; W. D. Dolan, Box 578, Shamrock, Okla.; B. C. Sharrett, Box 368, Covington, Okla.; L. M. Kelsey, Box 6, Shidler, Okla.; L. N. Yates, Box E. Kenbro, Kans.; F. B. Pearce, Box 865, Seminole, Okla.; L. F. Kneeland, Box 787, Seminole, Okla.; K. R. Elliott, Box 80, St. Louis, Okla.; L. C. Van Cleave, Box 4188 Capitol Hill, Oklahoma City, Okla.; C. J. Tighe, Box 1674, Longview, Tex.; V. H. Aker, Drawer CC, Arp, Tex.; Martin R. Wolf, Box 1007, Winfield, Kans.; Steel B. White, Drawer B. Bairoil, Wyo. *Plants* in Oklahoma, Kansas, Texas and Wyoming. *Capacity*, 416,200.

Skelly Oil Co., Skelly Bldg., Tulsa, Okla.

Pres., W. G. Skelly. *V. P.'s*, C. C. Herndon, W. T. Atkins, H. M. Stalcup, Emby Kaye. *Sec.* and *Treas.*, F. T. Hopp. *Gen. Supt.*, J. W. Vaiden. *Sales Mgr.*, W. T. Atkins. *Pur. Agt.*, Fred Robertson. *Supts.*, L. H. Adair, Box 178, Stinnett, Tex.; A. H. Bazell, Box 816, Burkburnett, Tex.; L. Barrett, Box 128, Skellytown, Tex.; G. E. Canaday, Box 236, Cunningham, Kans.; G. A. Smith, Box 36, Whittenburg, Tex.; D. A. Jordan, Box 128, Skellytown, Tex.; C. P. Duvall, (Panhandle Dist. Supt.), Box 128, Skellytown, Tex.; John Rush, Box 487, Fairfax, Okla.; E. K. Anderson, Box 157, Lyman, Okla.; P. E. Stephenson, Box 36, R. 2, Jennings, Okla.; C. N. Smith, Box 37, Carter Nine, Okla.; C. A. Holmes, Box 536, Seminole, Okla.; Albert Orton, Box 168, Slick, Okla.; Harry Muns, Box 413, Wynona, Okla. *Plants* in Oklahoma and Texas. *Capacity*, 187,000.

Sloan & Zook Co., 101 Main St., Bradford, Pa.

Pres., R. T. Zook. *V. P.*, W. J. Sloan. *Sec.*, C. T. Rickerson. *Treas.*, W. J. Sloan. *Gen. Supt.*, Paul H. Zook, Kane, Pa. *Pur. Agt.*, J. M. Moore. *Supt.*, T. C. Johnson, Kane, Pa. *Plant* in Pennsylvania. *Capacity*, 1,500.

Smith Bros. Refining Co., McLean, Tex.

Pres., Vester Smith. *V. P.*, Porter Smith. *Sec.-Treas.*, P. J. Coffey. *Plants* in Texas. *Capacity*, 90,000.

Snowden & McSweeney Co., 598 Madison Ave., New York, N. Y.

Pres., H. McSweeney. *V. P.'s*, J. P. Shannon, George G. Snowden, Jr. *Sec.*, Pearl M. Snowden. *Treas.*, Marie H. Wright. *Gen. Supt.*, A. E. Baldwin, Bridgeport, Ill. *Plant* in Illinois. *Capacity*, 1,000.

Southern Minerals Corp., 411 N. Broadway, Corpus Christi, Tex.

Pres., H. A. Galt, Barberton, Ohio. *V. P.*, C. M. Brown, 1616 Walnut St., Philadelphia, Pa. *Sec.*, J. H. Heroy. *Treas.*, F. W. Currier. *Gen. Supt.*, H. H. Hiatt. *Ch. Engr.*, F. P. Peterson, Jr. Operations of the Southern Minerals Corp. are in charge of S. Maston Nixon, *Asst. to Pres.*, with headquarters in Corpus Christ, Tex. *Plant* in Texas. *Capacity*, 13,000.

Southland Gasoline Co., 417 W. Sixth St., Tulsa, Okla.

Pres., B. J. Arbon. *V. P.*, H. M. Preston. *Sec.-Treas.*, B. J. Arbon. *Plant* in Oklahoma. *Capacity*, 2,000.

South Penn Oil Co., 411 Seventh Ave., Pittsburgh, Pa.

Pres., P. H. Curry. *V. P.s*, F. J. Huffman, C. B. Turner. *Sec.*, J. L. Hays. *Treas.*, T. B. Judge. *Gen. Supt.*, S. R. Williams. *Sales Mgr.*, W. A. Jackley. *Pur. Agt.*, W. P. Wissner. *Ch. Chem.*, H. J. Little. *Ch. Engr.*, O. O. Cole. *Supts.*, J. L. O'Neil, Oil City, Pa.; Andrew Watson, Noblestown, Pa.; O. C. Carlson, Bradford, Pa.; W. P. Dorrion, Tiona, Pa.; J. C. Knight, Fairview, W. Va.; J. P. McMurrer, Pinch, W. Va.; W. K. McCray, Spencer, W. Va.; J. F. Black, Wolf Summit, W. Va.; H. S. King, Yawkey, W. Va.; J. R. Brooks, Parkersburg, W. Va.; A. S. Haught, Smithfield, W. Va. *Plants* in Pennsylvania and West Virginia. *Capacity*, 24,950.

Standard Oil Co. of California, 225 Bush St., San Francisco, Calif.

Pres., K. R. Kingsbury. *V. P.s*, W. H. Berg, H. D. Collier, R. W. Hanna, R. K. Davies. *Sec.*, J. H. Tuttle. *Treas.*, V. F. Palmer. *Plants* in California. *Capacity*, 647,000.

Standard Oil Co. of Louisiana, 2134 St. Charles Ave., New Orleans, La.

Pres., M. J. Rathbone. *V. P.s*, J. A. Bechtold, M. W. Boyer, F. R. McGrew, J. R. McWilliams, J. E. Skehan. *Sec.*, S. E. Kidd. *Treas.*, J. A. Bechtold. *Gen. Supt.*, R. A. Howe, Shreveport, La. *Plants* in Louisiana and Arkansas. *Capacity*, 20,404.

Standard Oil Co. of Texas, 225 Bush St., San Francisco, Calif.

Pres., K. R. Kingsbury. *V. P.s*, W. H. Berg, R. W. Hanna, R. K. Davies, M. E. Lombardi, G. E. Kennedy. *Sec.*, J. H. Tuttle. *Treas.*, V. F. Palmer. *Plant* in Texas. *Capacity*, 20,000.

Stanolind Oil & Gas Co., Philcade Bldg., Tulsa, Okla.

Ch. of Bd., A. W. Peake. *Pres.*, F. O. Prior. *V. P.'s*, E. F. Bullard, A. M. McCorkle. *Sec.* and *Treas.*, F. J. Keleher. *Gen. Supt.*, C. S. Sanders. *Pur. Agt.*, W. L. James. *Supts.*, H. U. Jarrett, Tonkawa, Okla.; A. C. Andrews, Gilliam, La.; V. N. Sibley, Midwest, Wyo. *Plants* in Oklahoma, Louisiana and Wyoming. *Capacity*, 101,000.

Stephens (W. J.), Grand Valley, Pa.

Plant in Pennsylvania. *Capacity*, 100.

Sterling Oil & Gas Co., 1109 Thompson Bldg., Tulsa, Okla.

Pres., W. S. Duty, Winchester, Ky. *V. P.*, Thos. T. Curtis. *Sec.* and *Treas.*, A. E. Schmitz. *Gen. Supt.*, Thos. T. Curtis. *Supt.*, Elmer Overmon, Sperry, Okla. *Plant* in Oklahoma. *Capacity*, 150.

St. Helens Petroleum Co., Ltd., The, 1031 S. Broadway, Los Angeles, Calif.

Ch. of Bd., C. B. Stocken. *Gen. Mgr.*, Charles Drader. *Mng. Com.*, R. W. Stephens; Charles Drader; A. P. McEachern; F. M. Siegler. *Sec.*, H. Towers. *L. A. Sec.*, A. P. McEachern. *Gen. Supt.*, C. Z. Webb. *Sales Mgr.*, M. F. Dolan. *Pur. Agt.*, H. C. Drader. *Ch. Chem.*, C. W. Spark. *Plants* in California. *Capacity*, 3,250 (shut down).

Stranahan and Cheuvront, 405 W. Main St., Oblong, Ill.

Sec. and *Treas.*, A. B. Cheuvront. *Gen. Supt.*, J. F. Brown. *Pur. Agt.*, A. B. Cheuvront. *Plants* in Illinois. *Capacity*, 40.

Success Oil Co., 503 W. Elm St., Titusville, Pa.

Pres., George H. Davis. *Gen. Supt.*, Aubrey P. Porter. *Sales Mgr.*, George H. Davis. *Ch. Engr.*, A. P. Porter, Jr. *Plant* in Pennsylvania. *Capacity*, 1,500.

Superior Oil Co., 930 Edison Bldg., Los Angeles, Calif.

Pres., W. M. Keck. *V. P.'s*, J. P. Chandler, Charles A. Dore, W. A. Pruett. *Sec.* and *Treas.*, J. P. Chandler. *Pur. Agt.*, George H. Barry. *Plant* in California. *Capacity*, 100,000.

Surety Oil Co., Titusville, Pa.

Plant in Pennsylvania. *Capacity*, 1,000.

T

Tarbell & Co., Grand Valley, Pa.

Plant in Pennsylvania. *Capacity*, 80.

Texoma Natural Gas Co., 20 N. Wacker Drive, Chicago, Ill.

Pres., W. A. Jones. *V. P.s*, Floyd C. Brown; R. Ogarrio. *Sec.*, S. E. Campbell. *Treas.*, E. H. Johnston. *Gen Supt.*, G. M. Davidson. *Pur. Agt.*, L. E. Biggs. *Ch. Chem.*, E. G. Hammerschmidt. *Ch. Engr.*, G. M. Davidson. *Supt.*, R. T. Powers, Fritch, Tex. *Plant* in Texas. *Capacity*, 70,000.

Texas Co. (California), The, 929 Broadway, Los Angeles, Calif.

Pres. and *Gen. Mgr.*, C. E. Olmsted. *V. P.s*, H. W. Dodge, New York City; R. T. Herndon, L. R. Holmes. *Sec.*, E. M. Crone, New York City. *Treas.*, C. E. Woodbridge, New York City. *Prod. Mgr.*, F. C. Sealey. *Gen. Supt.*, H. S. Cole, Jr. *Supt. Gaso. Oper.*, N. H. Mull. *Pur. Agt.*, A. F. Colling, New York City. *Plants* in California. *Capacity*, 183,000.

Texas Co. (Delaware), The, 135 E. Forty-second St., New York, N. Y.

Pres., W. S. S. Rodgers. *V. P.s*, H. W. Dodge, T. J. Donoghue, Houston, Tex.; H. T. Klein, F. T. Manley,

(Continued on Page 112)

1,228,008,300 Gallons Shipped by WARREN

Since its organization in March 1922, Warren Petroleum Company has shipped a total of One Billion, Two Hundred Twenty-eight Million, Eight Thousand, Three Hundred (1,228,008,300) gallons of Natural Gasoline to the Refiners of the World.

Such a record involves two important factors—the confidence and patronage of the Refining Industry, and a sincere and successful effort by Warren to serve the natural gasoline manufacturer.

In its first year, 1922, Warren shipped less than 5,000,000 gallons of Natural Gasoline. During the last year, 1936, shipments exceeded 200,000,000 gallons.

Obviously such a volume of business required the consistent, dependable output of an ever increasing number of modern gasoline plants; adequate and well situated storage and shipping facilities, which include trained personnel, instant communication system and efficient administration.

Warren takes this opportunity to express its sincere thanks for the privilege of serving the Refiners and Manufacturers of the World during the past fifteen years, and pledges its experience, personnel and resources to a type of service which will justify a continuation of the confidence placed in our organization.

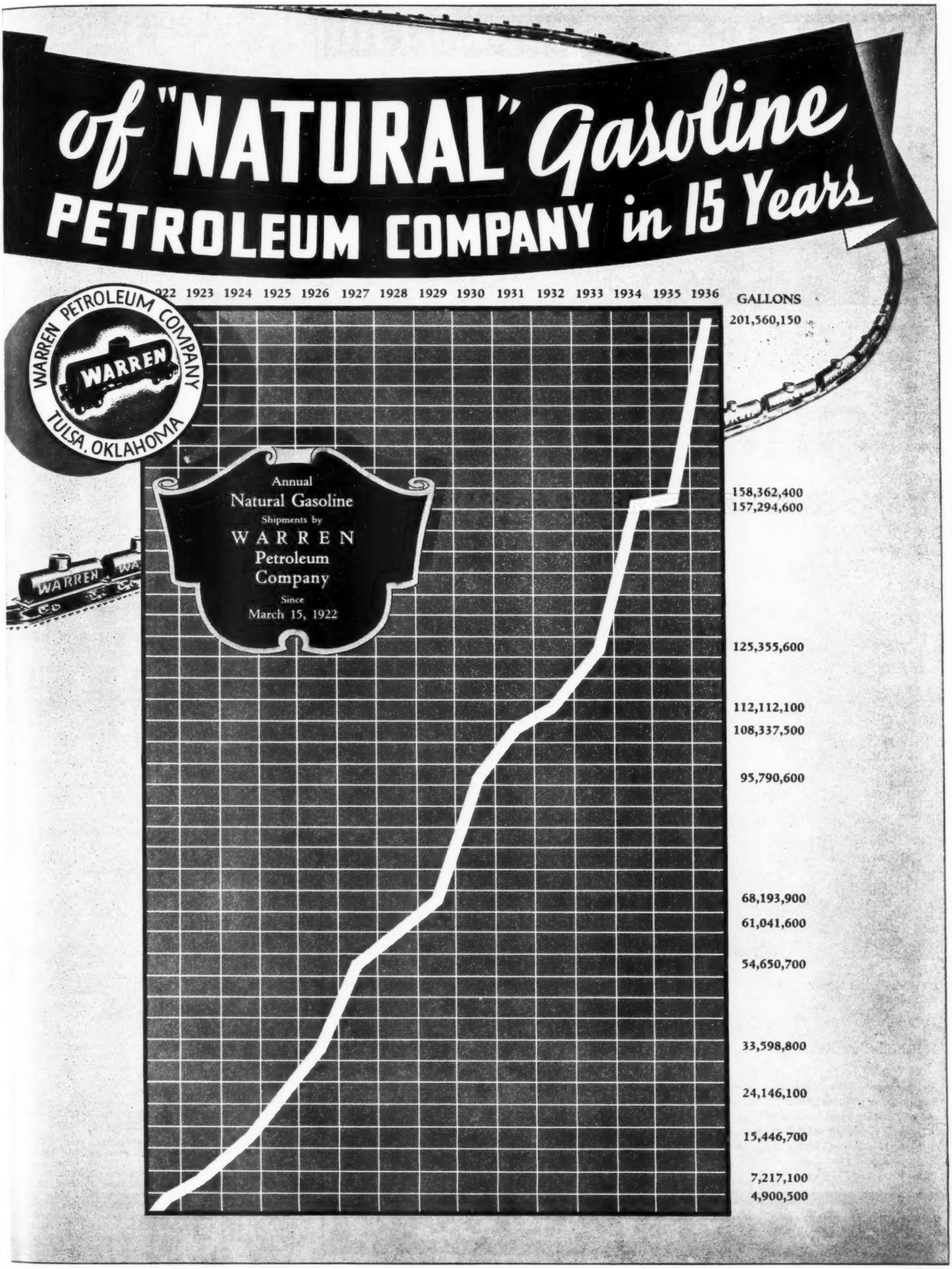
WARREN PETROLEUM COMPANY

Tulsa, Okla., U. S. A.

MANUFACTURERS, EXPORTERS AND MARKETERS

Export Terminals: Port Arthur and Norsworthy, Houston, Texas

JUST NATURAL GASOLINE


of "NATURAL" Gasoline
PETROLEUM COMPANY in 15 Years
WARREN PETROLEUM COMPANY
WARREN
TULSA, OKLAHOMA
1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
GALLONS
201,560,150
158,362,400
157,294,600
125,355,600
112,112,100
108,337,500
95,790,600
68,193,900
61,041,600
54,650,700
33,598,800
24,146,100
15,446,700
7,217,100
4,900,500
Annual
Natural Gasoline
Shipments by
WARREN
Petroleum
Company
Since
March 15, 1922
WARREN

CLEVELAND Model 110

SIMPLIFIES

YOUR DITCHING PROBLEMS

Dig Anywhere — Anytime

"Clevelands" are simple in construction — simple to handle on the job — and simple to transport.

Yet, they are extremely versatile, with many exclusive features which enable you to get more work done under everchanging job requirements.

This is accomplished through "Clevelands" quality design and construction, which, while extremely modern has come through, on the job, with flying colors, under practically every condition such a machine is likely to encounter.

If you want to simplify your ditching problems and effect substantial money savings, put one of these practical machines to work on your next job. Meanwhile, let us send you more complete details.

Above illustration shows a Cleveland Model 110 stripping pipe.

THE CLEVELAND TRENCHER COMPANY

20100 St. Clair Ave. **Cleveland, Ohio**

An important "Cleveland" idea that simplifies transportation and increases versatility. High-speed, low-cost transportation via special trailer. "Clevelands" load or unload on their own trailers in 10 to 15 minutes. Move from place to place at truck speed.

CLEVELANDS

G. L. Noble, Houston, Tex.; R. Ogarrio. *Sec.* E. M. Crone. *Treas.*, C. E. Woodbridge. *Prod. Mgr.*, L. E. Barrow, Houston, Tex. *Sales Mgrs.*, Northern, W. L. Kallman; Central, S. B. Wright, Chicago, Ill.; Southern, J. S. Leach, Houston, Tex.; Foreign, W. H. Borie. *Pur. Agt.*, A. F. Colling. *Supts.*, M. J. Adams, Fort Worth, Tex.; C. C. Kelley, Tulsa, Okla. *Plants* in Texas, Oklahoma and Kansas. *Capacity*, 110,980.

Texas Pacific Coal & Oil Co., Fort Worth, Tex.

Pres., J. R. Penn. *V. P.s*, O. E. Mitchell. John Hancock. *Sec.* and *Treas.*, R. Seibel. *Gen. Supt.*, D. B. Hiatt. *Sales Mgr.*, O. E. Mitchell. *Pur. Agt.*, J. C. Davis. *Engr.*, D. J. Costa. *Supts.*, C. D. Bronstad, Caddo, Tex.; H. D. White, Strawn, Tex. *Plants* in Texas. *Capacity*, 15,000.

Thomas (R. L.), 280 Main St., Tidioute, Pa.

Owner, R. L. Thomas. *Plant* in Pennsylvania. *Capacity*, 250.

Tompsett Bros., 15 Main, Tidioute, Pa.

Pres., W. C. Tompsett. *Plant* in Pennsylvania. *Capacity*, 500.

Triangle Co., McKees Rocks, Pa.

Pres., J. B. Montgomery. *Sec.*, J. H. Montgomery. *Treas.*, S. H. Morgan. *Pur. Agt.*, J. B. Montgomery. *Ch. Engr.*, A. A. Bock. *Plants* in Pennsylvania. *Capacity*, 400.

Triumph Petroleum Co., Route 2, Tidioute, Pa.

Plant Supt., Ernest R. Johnson (Mgr.). *Plant* in Pennsylvania. *Capacity*, 200.

Tucker Oil Co., Wichita Falls, Tex.

Pres., J. J. Perkins. *V. P.*, Charles J. Tucker. *Sec.* and *Treas.*, Harold Murph. *Gen. Supt.*, Charles J. Tucker. *Sales Mgr.*, Charles J. Tucker. *Pur. Agt.*, L. B. Horr, Box 641, Burkburnett, Tex. *Supt.*, L. B. Horr, Box 641, Burkburnett, Tex. *Plant* in Texas. *Capacity*, 3,000.

Tyler Oil Co., Sistersville, W. Va.

Pres., H. J. Crawford. *V. P.*, J. P. Flynn. *Sec.*, Nell B. McCoy. *Gen. Supt.*, J. P. Flynn. *Plants* in West Virginia and Ohio. *Capacity*, 149.

U

Union Gasoline & Oil Corp., Kanawha Valley Bldg., Charleston, W. Va.

Pres., Charles A. Munroe. *V. P.s*, Don M. Wilson, Charles F. Huff, Ralph N. Parks. *Sec.*, William M. Fallon. *Treas.*, N. E. Shupe. *Sales Mgr.*, Ralph N. Parks. *Ch. Chem.*, J. E. Pew. *Supts.*, W. H. Dardinger, R.F.D. No. 2, Moundsville, W. Va.; Charles Stackpole, Porter Falls, W. Va.; Rex Allman, Jane Lew, W. Va. *Plants* in Pennsylvania and West Virginia. *Capacity* 16,000 (3,000 shut down).

Union Gas System, Inc., First National Bank Bldg., Independence, Kans.

Pres., Paul R. Johnson. *V. P.'s*, Donald W. Stewart, Stanley G. Stewart. *Sec.*, Donald Stewart. *Treas.*, Harry F. Mitchell. *Pur. Agt.*, W. L. Orr. *Ch. Engr.*, F. L. Rupp. *Plant* located in Kansas. *Capacity*, 2,000 (shut down).

Union Oil Co. of California, 617 W. Seventh St., Los Angeles, Calif.

Pres., L. P. St. Clair. *V. P.s*, R. D. Matthews, W. W. Orcutt, W. L. Stewart, Jr., Paul M. Gregg. *Asst. V. P.*, A. C. Galbraith. *Compt.*, G. H. Foster. *Asst. Compts.*, A. B. Mason, A. H. Hand, M. G. Kerr. *Sec.*, W. W. Edwards. *Treas.*, J. M. Rust. *Asst. Secs.*, A. W. Milford, E. H. Estill. *Asst. Treas.*, A. C. Marshall, H. W. Sanders. *Gen. Mgr.*, R. E. Haylett. *Gen. Supt.*, R. D. Gibbs. *Sales Mgr.*, V. H. Kelly. *Pur. Agt.*, H. C. Farquhar. *Ch. Chem.*, Dr. D. R. Merrill. *Ch. Engr.*, E. W. Gard. *Supt.*, J. C. Rector, Santa Fe Springs, Calif. *Plants* in California. *Capacity*, 208,750.

United Carbon Co., Inc., Union Bldg., Charleston, W. Va.

Pres., Oscar Nelson. *V. P.'s*, G. A. Williams, T. F. Koblegard. *Sec.*, C. H. McHenry. *Treas.*, T. A. Whelan. *Gen. Supt.*, H. E. Norrick. *Sales Mgr.*, A. G. Treadgold. *Pur. Agt.*, C. A. Urban. *Ch. Engr.*, Hilding Hanson. *Ch. Chem.*, G. L. Roberts. *Plant Supts.*, H. W. Engstrom, Monroe, La.; E. H. Shinn, Borger, Tex.; C. K. Springfield, Sayre, Okla. *Plants* in Texas, Louisiana and Oklahoma. *Capacity*, 29,000 (18,000 shut down).

United Gas Public Service Co., P. O. Box 2492, Houston, Tex.

Pres., N. C. McGowen, Shreveport, La. *V. P.'s*, R. H. Hargrove, J. V. Strange. *Comptroller*, S. L. Davis. *Sec.*, J. H. Miracle. *Treas.*, L. V. Tracht. *Gen. Supt.*, W. F. Fulton. *Pur. Agt.*, R. A. Reeder. *Ch. Chem.*, W. F. Fulton. *Ch. Engr.*, A. D. Green. *Supts.*, O. M. Campbell, (Agua Dulce), Banquete, Tex.; H. S. Ridings, (Alto), Archibald, La.; J. A. Temple, Cotton Valley, La.; L. O. Lawless, (Latex), Bethany, La.; F. C. Dugan, (Refugio), J. L. Gilbert, (Rodessa), Myrtis, La.; A. Meeks, (Sugar Creek), Athens, La. *Plants* in Louisiana and Texas. *Capacity*, 346,800 (3,800 shut down).

Universal Consolidated Oil Co., 417 S. Hill St., Los Angeles, Calif.

Pres., E. G. Starr. *V. P.*, R. E. Stearns. *Sec.*, R. D. Miller. *Treas.*, G. A. Zanzot. *Gen. Supt.*, D. M. Hodges. *Pur. Agt.*, P. J. Hayes. *Plant* in California. *Capacity*, 8,000.

Utilities Production Corp., Tulsa, Okla.

Pres., H. T. Prichard, Chicago, Ill. *V. P.*, B. F. Pickard, St. Louis, Mo. *Pur. Agt.*, E. C. Wetter. *Plant* in Oklahoma. *Capacity*, 1,500 (shut down).

V

Victor Gasoline Co., 624 S. Cheyenne, Tulsa, Okla.

Pres., M. F. Powers. *V. P.*, A. D. Blackard. *Sec.*, J. L. Goddard. *Gen. Supt.*, M. F. Powers. *Pur. Agt.*, F. George Heinze. *Supts.*, L. J. Rush, Box 272, Bristow, Okla.; D. B. Gilmore, Route 3, Box 99, Stroud, Okla. *Plants* in Oklahoma. *Capacity*, 10,000.

Vincennes Oil & Gas Co., Sullivan, Ind.

Pres., E. M. Kerlin. *V. P.*, C. E. Kerlin. *Sec.*, R. D. Green. *Gen. Supt.*, R. C. Kerlin. *Supt.*, Homer Means, Lawrenceville. *Plant* in Indiana. *Capacity*, 1,000.

Virginian Gasoline & Oil Co., Kanawha Valley Bldg., Charleston, W. Va.

Pres., Charles A. Munroe. *V. P.s*, Don M. Wilson, Charles F. Huff, Ralph N. Parks. *Sec.*, William M. Falion. *Sales Mgr.*, Ralph N. Parks. *Ch. Chem.*, J. E. Pew. *Supts.*, W. L. Haynes, Clendenin, W. Va.; W. H. Evilsizer, Villa Route, Box No. 8, Charleston, W. Va.; C. R. Smith, R.F.D. No. 2, Box 240, St. Albans, W. Va.; George Kiser, Hubball, W. Va.; C. H. Copenhaver, Stoffel, W. Va.; George S. Robinson, Box 162, Mammoth, W. Va.; Ray Grabeel, Ona, W. Va.; H. W. Critchfield, Sandyville, W. Va.; W. F. Burdette, Three Mile, W. Va.; Silas Clark, Pad, W. Va.; S. M. Pittman, R.F.D. No. 1, Box 127, Charleston, W. Va.; Ramie J. Grady, Box 388, Spencer, W. Va.; Owen Wheeler, R.F.D. No. 1, Catlettsburg, Ky.; M. H. Griffith, Kermit, W. Va. *Plants* in West Virginia and Kentucky. *Capacity*, 188,600 (22,300 shut down).

W

Waggoner, W. T., Estate (Natural Gasoline Dept.), Vernon, Tex.

Pres., G. L. Waggoner. *V. P.*, E. P. Waggoner. *Sec.*, R. L. More. *Gen. Mgr.*, R. G. Cocanower. *Pur. Agt.*, J. T. McNamara. *Supt.*, S. K. Thorne. *Plant* in Texas. *Capacity*, 12,000.

Wahl, A. R., 249 Main St., Evans City, Pa.

Owner, A. R. Wahl. *Plant* in Pennsylvania. *Capacity*, 3,000.

Warner-Caldwell Oil Co., Second National Bank Bldg., Titusville, Pa.

Pres., Alex N. Warner. *V. P.*, James H. Caldwell. *Sec.* and *Treas.*, Floyd B. August. *Gen. Supt.*, Alex N. Warner. *Sales Mgr.*, Alex N. Warner. *Pur. Agt.*, Alex N. Warner. *Ch. Engr.*, John T. Dalton. *Supt.*, John T. Dalton, R. No. 2, Titusville, Pa. *Plant* in Pennsylvania. *Capacity*, 1,000.

Warren Petroleum Co., 2001 National Bank of Tulsa Bldg., Tulsa, Okla.

Pres., W. K. Warren. *V. P.*, J. A. LaFortune. *Sec.*, H. E. Felt. *Treas.*, A. J. Murphy. *Gen. Supt.*, M. E. Mockley. *Sales Mgr.*, J. A. LaFortune. *Pur. Agt.*, P. J. Hoagland. *Ch. Engr.*, H. W. Harts. *Plants* in Oklahoma. *Capacity*, 90,000.

Wentz (H. L.), (Oil Division), Ponca City, Okla.

Gen. Supt., O. H. Schoenwald. *Pur. Agt.*, S. C. Harkness. *Supts.*, E. Whitehead, Jr., Tonkawa, Okla.; M. F. Johnson, R.F.D. 3, Newkirk, Okla. *Plants* in Oklahoma. *Capacity*, 8,000.

Western States Gasoline Corp., 609 S. Grand Ave., Los Angeles, Calif.

Pres. and *Treas.*, C. R. Gallagher. *V. P.*, E. McGowan. *Sec.*, G. C. O'Connell. *Gen. Supt.*, W. N. Roper. *Pur. Agt.*, C. E. Spangler. *Ch. Engr.*, W. N. Roper. *Supts.*, W. F. Boice, P. O. Box 7, Avenal, Calif.; K. C. Hamilton, P. O. Box 624, Ventura, Calif. *Plants* in California. *Capacity*, 170,000.

West Coast Refining Co., 1003 Richfield Bldg., Los Angeles, Calif.

Pres., A. H. Bradford. *V. P.*, M. D. Schatzman. *Sec.* and *Treas.*, W. B. Ogden. *Gen. Supt.*, W. M. Bradford. *Plant* in California. *Capacity*, 50,000.

West Texas Gas Co., Lubbock, Tex.

Pres., Albert R. Jones, Kansas City, Mo. *V. P.'s*, R. F. Hinchey; P. C. Spencer, New York City; M. D. Snyder, Amarillo, Tex.; E. A. Sickels, Tulsa, Okla. *Sec.* and *Treas.*, George Baird, New York City. *Gen. Supt.*, E. C. Wagner, Amarillo, Tex. *Pur. Agt.*, E. D. Parker. *Ch. Engr.*, W. W. Rusk, Amarillo, Tex. *Supt.*, J. S. LeGate, Box 445, R. 3, Amarillo, Tex. *Plant* in Texas. *Capacity*, 30,000.

West Oak Gasoline Co., Sayre, Okla.

Plant operated by United Carbon Co., Inc.

Wheeler (D. H.), Box 86, Petrolia, Pa.

Plant in Pennsylvania. *Capacity*, 200.

Wilcox Oil & Gas Co. (H. F.), Wilcox Bldg., Tulsa, Okla.

Pres., H. F. Wilcox. *V. P.'s*, F. H. Dunn, M. P. Appleby. *Sec.*, C. L. Miller. *Treas.*, M. P. Appleby. *Sales Mgr.*, L. G. Murrell. *Pur. Agt.*, T. H. Riggin. *Ch. Chem.*, W. M. Fraser. *Ch. Engr.*, W. R. Bingham. *Supt.*, Cecil Gant, Box 422, Pampa, Tex. *Plant* in Texas. *Capacity*, 5,000.

Will (Jacob W.), McDonald, Pa.

Plant in Pennsylvania. *Capacity*, 50.

Wilshire Oil Co., Inc., 2455 E. Twenty-seventh St., Vernon, Calif.

Pres., Geo. L. Machris. *V. P.*, M. A. Machris. *Asst. Sec.*, W. D. Smith. *Treas.*, A. P. Machris. *Gen. Supt.*, T. B. Gates. *Sales Mgr.*, M. M. Fletcher. *Pur. Agt.*, A. A. Pateracki. *Ch. Chem.*, Fred A. Scherf. *Ch. Engr.*, Wm. Neeley. *Supt.*, L. A. Seppi, Santa Fe Springs, Calif. *Plant* in California. *Capacity*, 60,000.

Wolverine Petroleum Corp., Shell Bldg., St. Louis, Mo.

Pres., Alexander Fraser. *Sec.*, C. S. Gentry. *Treas.*, J. W. Watson. *Gen. Supt.*, T. R. Goebel. *Supts.*, L. Lamar, Drawer B, Wolco, Okla.; S. U. Young, Box 548, Wilson, Okla. *Plants* in Oklahoma. *Capacity*, 20,000.

Wright (Rosa B.), 1700 S. Main St., Sapulpa, Okla.

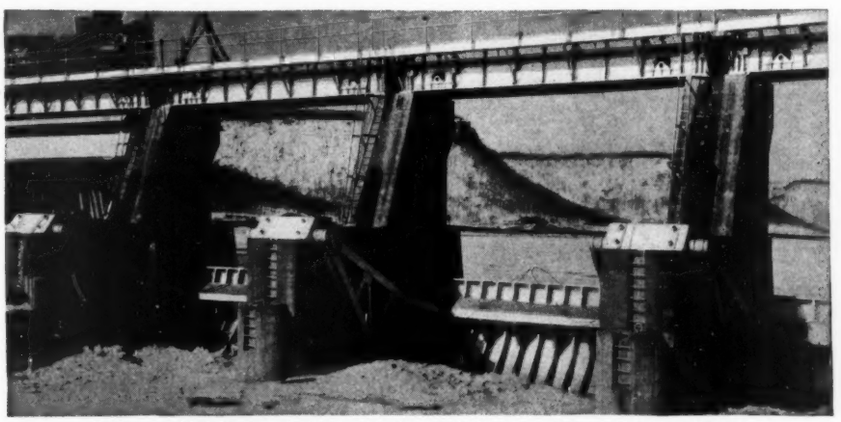
Owner, Rosa B. Wright. *Gen. Supt.*, A. B. Nigh, Kellyville, Okla. *Sales Mgr.*, M. L. Murphy. *Pur. Agt.*, Frank Denham. *Ch. Engr.*, A. B. Nigh. *Plant* in Oklahoma. *Capacity*, 5,000.

Egloff Writes New Book

Dr. Gustav Egloff of Universal Oil Products Co. has written a very valuable book, "Reactions of the Pure Hydrocarbons," which will shortly be off the press. Into it have gone the experience and the learning of more than 20 years devoted to research and development to produce more and better gasoline.

As director of research, Doctor Egloff has played an important part in the development and improvement of the Dubbs cracking process and is also active in the development of catalytic polymerization.

GAIN BY FORTIFYING
Aluminum Paints
with Bakelite Resin



Service tests of Bakelite resin aluminum paint vehicle resulted in the specification of 100% phenolic resin varnish for the steel roller and tainter gates of 26 Mississippi River dams.

IN ORDER to give maximum protection to steel or wood, aluminum paint must employ vehicle with maximum moisture resistance. In this respect, Bakelite resin fortified vehicles have proved outstanding.

For example, here are results* of moisture tests by two paint authorities not associated with Bakelite Corporation:

	Moisture-Impedance of Films on Fine Wood (Alum. Corp. Method)	Moisture-Proofing Efficiency (Forest Prod. Lab. Method)
Ordinary Spar Varnish	20	26
Non-phenolic Synthetic Resin Varnish	26	29
Bakelite Resin Varnish	50	43

*Reprinted by permission of Industrial & Engineering Chemistry

As a direct result of the improved performance furnished by Bakelite resins, specifications for spar varnishes and aluminum vehicles have advanced as follows: Boiling Water Tests, formerly 15 minutes, now 7 hours; Immersion in 5% Caustic Soda, formerly not required, now 7 to 24 hours.

Other types of protective coatings fortified with Bakelite resins by leading paint and varnish makers now afford similar improvement in protective value. Write for informative booklet 31S, "Bakelite Synthetic Resins".

BAKELITE CORPORATION, 247 PARK AVENUE, NEW YORK, N.Y.
BAKELITE CORPORATION OF CANADA, LTD., 163 Dufferin Street, Toronto, Ont.

BAKELITE

The registered trade marks shown above distinguish products manufactured by Bakelite Corporation. Under the symbol "B" is the numbered sign for vinylite, a chemical material. It symbolizes the infinite number of present and future uses of Bakelite Corporation's products.

SYNTHETIC RESINS

1937 Survey of Natural Gasoline Plants in U. S.

ARKANSAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Arkansas Fuel Oil Co., Shreveport, La.	Sec. 31-17s-15w, Union Co.	Comb.	5,000
Gulf Refining Co., El Dorado	El Dorado South field	Absp.	4,000
Henderson Co., El Dorado	Union County	Comp.	10,000
Henderson Co., El Dorado	Union County	Comp.	20,000
Imperial Oil & Gas Products Co., Smackover	Smackover	Comp.	500
Louisiana Iron & Supply Co., Shreveport, La.	Louann	Absp.	4,000
Magnolia Petroleum Co., El Dorado Ark.	Sec. 8-15s-16w, Union Co.	Absp.	5,000
Standard Oil Co. of Louisiana	El Dorado, 3 mi.	C-A	10,660
Standard Oil Co. of Louisiana	Smackover, 3 mi.	C-A	1,067

CALIFORNIA

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Bankline Oil Co., Los Angeles	Farm Lot 64, Signal Hill	Absp.	25,000
Barnsdall Oil Co., Goleta	Elwood	Absp.	60,000
Belridge Oil Co., Los Angeles	W½ Sec. 26-27-20	Absp.	*50,000
Belridge Oil Co., McKittrick	W½ Sec. 26-27-20	Absp.	50,000
Brea Canyon Oil Co., Los Angeles	Brea-Olinda	Absp.	14,000
Calumet Oil Co., Los Angeles	Fillmore	Comp.	1,000
Coline Gasoline Corp., 301 Kerckhoff Bldg., Los Angeles	Sec. 16-3n-24w	Absp.	8,000
Coline Gasoline Corp., 301 Kerckhoff Bldg., Los Angeles	Sec. 16-4s-14w	Absp.	12,000
Cowan Oil & Ref. Co., Los Angeles	Belridge	Absp.	25,000
Del Rey Oil & Gas Co., Venice	Los Angeles County Ventura-Newhall field	Absp.	60,000 250
Field, O. C., Gasoline Corp., Los Angeles	Huntington Beach	Absp.	40,000
Field, O. C., Gasoline Corp., Los Angeles	Huntington Beach	Absp.	50,000
Fullerton Oil Co., Fullerton	Brea-Olinda	Absp.	6,000
General Pet. Corp. of Calif., Los Angeles	Brea-Olinda	Absp.	20,000
General Pet. Corp. of Calif., Los Angeles	Rosecrans	C-A	70,000
General Pet. Corp. of Calif., Los Angeles	Santa Fe Springs	Absp.	110,000*
General Pet. Corp. of Calif., Los Angeles	Ventura	Absp.	40,000
General Pet. Corp. of Calif., Los Angeles	Wilmington	Absp.	‡30,000
Gilmore-Dabney, Inc., Los Angeles	Long Beach	Absp.	*30,000
Gilmore-Dabney, Inc., Los Angeles	Long Beach	Absp.	*30,000
Gilmore-Dabney, Inc., Los Angeles	Long Beach	Absp.	*30,000
Gilmore-Dabney, Inc., Los Angeles	Long Beach	Absp.	30,000
Hokom, John, Oil & Gas Co., Los Angeles	Lawndale	Absp.	2,500
Honolulu Oil Corp., Taft	Sec. 8-32-24	Comb.	25,000
Honolulu Oil Corp., Taft	Sec. 8-32-24	Comb.	25,000
Inglewood Gasoline Corp., Long Beach	Inglewood	Absp.	5,000
Italo Pet. Corp. of America, San Francisco	Coalinga	Absp.	300
Lomita Gasoline Co., Box 851 Long Beach	29th and Orange	Absp.	50,000
Lomita Gasoline Co., Box 851 Long Beach	Bakersfield	Absp.	20,000
Los Nietos Producing & Refining Co., Ltd., Box J, Avenal	Kettleman Hills	Absp.	100,000
Mohawk Petroleum Co., San Francisco	Mountain View	Absp.	10,000
Norwalk Co., The, Los Angeles	Sec. 30-31-24, Kern County	Absp.	10,000
Norwalk Co., The, Los Angeles	Sec. 36-12-24, Kern County	Absp.	10,000
Norwalk Co., The, Los Angeles	Sec. 6-3-11, Santa Fe Springs	Absp.	50,000
Ohio Oil Co., Los Angeles	Los Angeles County	Absp.	20,000
Pacific Western Oil Corp., Los Angeles	Sec. 16-4n-29w	Absp.	12,000
Pacific Western Oil Corp., Los Angeles	Sec. 7-4n-18w	Absp.	15,000
Rice Ranch Oil Co., Santa Maria	Santa Maria	Absp.	6,000
Richfield Oil Corp., Los Angeles	Long Beach	Absp.	30,000
Richfield Oil Corp., Los Angeles	Santa Fe Springs	Absp.	*30,000
Shell Oil Co., San Francisco	Brea-Olinda	Absp.	20,000
Shell Oil Co., San Francisco	Captain	Absp.	5,000
Shell Oil Co., San Francisco	Dominguez	Absp.	25,000
Shell Oil Co., San Francisco	Long Beach	Absp.	120,000
Shell Oil Co., San Francisco	Santa Maria	Absp.	2,500
Shell Oil Co., San Francisco	Ten Sections	Absp.	12,000
Shell Oil Co., San Francisco	Ventura	Absp.	90,000
Signal Hill Gasoline Co., Los Angeles	Elk Hills	Absp.	5,000
Signal Hill Gasoline Co., Los Angeles	El Segundo	Absp.	†30,000
Signal Hill Gasoline Co., Los Angeles	Rincon	Absp.	15,000
Signal Hill Gasoline Co., Los Angeles	Huntington	Absp.	*15,000
Signal Hill Gasoline Co., Los Angeles	Long Beach	Absp.	*35,000
Signal Hill Gasoline Co., Los Angeles	Long Beach	Absp.	*10,000
Signal Oil & Gas Co., Los Angeles	Elwood	Absp.	10,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	20,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	30,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	*15,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	15,000
Signal Oil & Gas Co., Los Angeles	Long Beach	Absp.	*30,000
Standard Oil Co. of Calif., San Francisco	Berea	Absp.	6,500
Standard Oil Co. of Calif., San Francisco	Cahn lease, Lost Hills	Absp.	4,000
Standard Oil Co. of Calif., San Francisco	Dominguez Est., Dominguez	Absp.	*6,750
Standard Oil Co. of Calif., San Francisco	Hunt. "A" lease, Huntington Beach	Absp.	*12,000
Standard Oil Co. of Calif., San Francisco	Hunt. "D" lease, Huntington Beach	Absp.	20,000
Standard Oil Co. of Calif., San Francisco	Hunt. "E" lease, Huntington Beach	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	L. A. Invest. No. 1 Inglewood	Absp.	10,000
Standard Oil Co. of Calif., San Francisco	Joughin lease, Torrance	Absp.	6,000
Standard Oil Co. of Calif., San Francisco	Lloyd lease, Ventura	Absp.	35,000
Standard Oil Co. of Calif., San Francisco	Long Beach	Absp.	20,000
Standard Oil Co. of Calif., San Francisco	McGonigle & Lloyd lease, Ventura	Absp.	28,000
Standard Oil Co. of Calif., San Francisco	Mullaney lse., 24-X, Mountain View	Absp.	8,000
Standard Oil Co. of Calif., San Francisco	Murphy lse., Murphy Coyote	Absp.	15,000
Standard Oil Co. of Calif., San Francisco	San Gabriel lse., Seal Beach	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	Santa Gertrudes lease, Santa Fe Springs	Absp.	30,000
Standard Oil Co. of Calif., San Francisco	Sec. 1-C lease, Taft	Absp.	16,000
Standard Oil Co. of Calif., San Francisco	Sec. 7-D lease, Taft	Absp.	16,000
Standard Oil Co. of Calif., San Francisco	Sec. 35-S lease, Taft	Absp.	*10,000
Standard Oil Co. of Calif., San Francisco	Sec. 31-B lease, Taft	Absp.	8,000
Standard Oil Co. of Calif., San Francisco	Sec. 36-R lease, Taft	Absp.	*6,000
Standard Oil Co. of Calif., San Francisco	Sec. 31-E lease, Taft	Absp.	7,500
Standard Oil Co. of Calif., San Francisco	Sec. 29-G lease, Taft	Absp.	10,000
Standard Oil Co. of Calif., San Francisco	Sec. 29-V lse., Ket'lem'n Hills	Absp.	35,000
Standard Oil Co. of Calif., San Francisco	Sec. 11-P lse., Ket'lem'n Hills	Absp.	80,000
Standard Oil Co. of Calif., San Francisco	Sec. 3-P lse., Ket'lem'n Hills	Absp.	135,000
Standard Oil Co. of Calif., San Francisco	Sec. 33-J lse., Ket'lem'n Hills	Absp.	85,000
Standard Oil Co. of Calif., San Francisco	Sec. 32-Z lse., Mountain View	Absp.	12,000
Standard Oil Co. of Calif., San Francisco	Temple lease, Montebello	Absp.	*5,000
St. Helens Petroleum Co., Ltd., R.F.D. 1, Box 35, Taft	Midway-Sunset	Absp.	*2,000
St. Helens Petroleum Co., Ltd., Box 248, Montebello	Montebello	Absp.	*1,250
Superior Oil Co., Los Angeles	Kettleman Hills	Absp.	100,000
Western States Gasoline Corp., Los Angeles	Kettleman Hills field	Absp.	160,000
Texas Co. (Cal.), Los Angeles	Lot 1, Tr., 3638, Los Angeles County	Absp.	*2,500
Texas Co. (Cal.), Los Angeles	Lot 4, Am. Co. Tr., Los Angeles Co.	Absp.	75,000
Texas Co. (Cal.), Los Angeles	Lot 9, Tr. 3638, Los Angeles County	Absp.	25,000
Texas Co. (Cal.), Los Angeles	Lots 21-22, Blk. Gar. Tr., Orange County	Absp.	20,000
Texas Co. (Cal.), Los Angeles	Sec. 6-8s-11w, Los Ang. Co.	Absp.	50,000
Texas Co. (Cal.), Los Angeles	Sec. 2-22s-17e, Ventura Co.	Comp.	10,500
Texas Co. (Cal.), Los Angeles	Shiells lease, Ventura Co.	Absp.	14,500
Union Oil Co. of California, Los Angeles	Bell lse., Santa Fe Springs	Absp.	70,000
Union Oil Co. of California, Los Angeles	Hellman lease., Dominguez	Absp.	86,000
Union Oil Co. of California, Los Angeles	Morse lease, Richfield field	Absp.	10,000
Union Oil Co. of California, Los Angeles	Newlove lease, Santa Maria	Absp.	10,000
Union Oil Co. of California, Los Angeles	Rosecrans lease, Rosecrans	Absp.	27,000
Union Oil Co. of California, Los Angeles	Santa Paula refinery,		
Union Oil Co. of California, Los Angeles	Stearns lse., Brea Olinda fld.	Absp.	22,500
Universal Consolidated Oil Co., 417 S. Hill St., Los Angeles	Montebello	Absp.	8,000
West Coast Ref. Co., Los Angeles	Richfield	Absp.	50,000
Western States Gasoline Corp., Los Angeles	San Miguelita field	Absp.	10,000
Wilshire Oil Co., Inc., 2455 E. 27th St., Vernon	Santa Fe Springs	Absp.	60,000

*Shut down. †Owned by Richfield Oil Corp. ‡Building.

COLORADO

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Ft. Collins Prod. Corp. (Continental Oil Co.), Ft. Collins	Larimer County	Comp.	500
Mountain States Oil Corp., Barela	SW¼ Sec. 3-33s-62w	Absp.	6,000

ILLINOIS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
American Oil Development Co., Eaton	Crawford County	Comp.	200
American Oil Develop. Co., Hardinsville	Crawford County	Comp.	100
American Oil Development Co., Oblong	Crawford County	Comp.	200
Arkansas Fuel Oil Co., Shreveport, La.	Sec. 3, Prairie Twp., Crawford County	Comp.	500
Brenneman & MacDonell, Lima, Ohio	Oblong Twp., Crawford Co.	Comp.	1,500
Brenneman & MacDonell, Lima, Ohio	Oblong Twp., Crawford Co.	Comp.	500
International Oil & Gas Co., Washington, Pa.	Crawford Co.	Comp.	2,000
Kewanee Oil & Gas Co., Philadelphia, Pa.	Crawford Co. (5 plants, total)	Comp.	300
Kewanee Oil & Gas Co., Philadelphia, Pa.	Lawrence Co. (2 plants, total)	Comp.	150
Mahutska Oil Co., Robinson	Crawford Co.	Comp.	300
Nolan & Lamberton, Tulsa, Okla.	Sec. 12-7-14, Crawford Co.	Comp.	100
Ohio Oil Co., Bridgeport	Lawrence County	Comp.	1,050
Ohio Oil Co., Casey	Clark County	Comp.	1,150
Ohio Oil Co., Hardinville	Crawford County	Comp.	756
Ohio Oil Co., Hardinville	Crawford County	Comp.	100
Ohio Oil Co., Oblong	Crawford County	Comp.	405
Ohio Oil Co., Oblong	Crawford County	Comp.	242
Ohio Oil Co., Oblong	Crawford County	Comp.	310
Ohio Oil Co., Oblong	Crawford County	Comp.	342
Ohio Oil Co., Oblong	Crawford County	Comp.	1,130
Ohio Oil Co., Oblong	Crawford County	Comp.	200
Ohio Oil Co., Robinson	Crawford County	Comp.	243
Ohio Oil Co., Stoy	Crawford County	Comp.	833
Snowden & McSweeney Co., 598 Madison Ave., New York, N. Y.	Bridgeport	Topping	1,000
Stranahan & Sheuvront, Oblong	Crawford County	Comp.	20
Stranahan & Sheuvront, Oblong	Crawford County	Comp.	20
Vacuum Gasoline Co., Lawrenceville	Lawrence Co.	Comp.	5,000
Vincennes Oil & Gas Co., Sullivan	Lawrence Co., Petty Twp.	Comp.	1,000

KANSAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Barnsdall Oil Co., Oxford	W½ NW Sec. 20-33-3	Absp.	12,000
Consolidated Gas Utilities Corp., Okla. City	Sec. 24-32s-1w	Absp.	*12,000
Empire Oil & Refining Co., Arkansas City	SE¼ Sec. 13-34-3, Cowley Co.	Absp.	15,000
Empire Oil & Refining Co., Burrton	W½ Sec. 25-23-4, Reno Co.	Absp.	35,000
Empire Oil & Refining Co., Hamilton	SW¼ Sec. 16-23-9, Greenwood County	Absp.	10,000
Empire Oil & Refining Co., Haven	N½ SE¼ Sec. 17-24-4, Reno County	Absp.	25,000
Empire Oil & Refining Co., Madison	NW¼ Sec. 8-23-11, Greenwood County	Absp.	9,000
Empire Oil & Refining Co., Wichita	NW¼ Sec. 17-28-1, Sedgwick County	Absp.	50,000
Kansas Power & Light Co., Salina	SW Sec. 29-18-2w	Absp.	20,000
Kansas Power & Light Co., Salina	NE Sec. 13-32-12w	Absp.	5,000
McPherson Oil & Gas Dev. Co., Salina	SW Sec. 29-18-2w	Absp.	10,000
Natural Gasoline Corp., Box 157, Galva	14-19s-2w, McPherson Co.	Absp.	30,000
Panhandle Eastern Pipe Line Co., Liberal	Near Liberal Kingman County	Comp. Absp.	30,000 5,000
Pep Gasoline Co., Sedan	31-33-12	Comp.	*1,800
Shell Petroleum Corp, Box 26, Greenwich	SE¼ Sec. 25-31s-2e	Absp.	2,500
Sinclair Prairie Oil Co., Box E, Kenbro	SW¼, Sec. 20-22-10e	Comp.	7,000
Sinclair Prairie Oil Co., Box 1007, Winfield	W½ NW¼, Sec. 24-32s-4e	Comp.	3,000
Skelly Oil Co., Box 236, Cunningham	N½ NE¼ Sec. 30-27s-10w,		
Texas Co. (Dela.), Houston, Tex.	SW¼ SE¼ Sec. 31-30s-6e, Cowley County	Absp.	8,050
Union Gas System, Inc., Independence	So. of Caney	Absp.	*2,000

*Shut down.

KENTUCKY

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Coast Oil Co., Monticello	Monticello	Comp.	*500
Louisville Gas & Electric Co., Louisville	Winchester	Char.	2,500
Virginian Gasoline & Oil Co., Catlettesburg	Boyd County	Absp.	24,000
Virginian Gasoline & Oil Co., Kermit, W. Va.	Martin County	Absp.	10,000

LOUISIANA

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Arkansas Fuel Oil Co., Shreveport	Sec. 7-17n-11w, Bossier Parish	Absp.	10,000
Arkansas Fuel Oil Co., Shreveport	Sec. 26-23n-16w, Caddo Parish	Absp.	60,000
Arkansas Fuel Oil Co., Shreveport	Sec. 24-21n-8w, Claiborne Parish	Comp.	5,000
Columbian Gasoline Corp., Monroe	E½ Sec. 5-18n-5e, Ouachita	Absp.	5,000
Columbian Gasoline Corp., Monroe	Sec. 2-19n-4e, Ouachita	Absp.	5,000
Coltexo Corp., Rodessa	SW¼ NE¼ Sec. 14-23n-16w, Caddo Parish	Absp.	40,000
Continental Oil Co., Basile	Tepetate field	Absp.	15,000
Continental Oil Co., Lake Charles	Calcasieu Parish	Absp.	6,000
East Texas Refining Co. of Delaware, Rodessa	Rodessa Townsite	Absp.	12,000
Glen Rose Gasoline Co., Shreveport	Rodessa	Absp.	25,000
Gulf Refining Co., Mooringsport	Sec. 12-12n-11w, Red River		
Gulf Refining Co., Mooringsport	Caddo	Comp.	8,000
Magnolia Petroleum Co., Dallas	Homer Parish	Absp. Comp.	10,000 *1,300
Ohio Oil Co., Haynesville	Claiborne Parish	Absp.	2,000
Ohio Oil Co., Haynesville	Claiborne Parish	Absp.	2,000
Ohio Oil Co., Treat	Webster Parish	Absp.	2,000
Pala Oil Co., Inc., Mooringsport, La.	Sec. 20-20-15	Comp.	*300
Rodessa Gasoline Co., Ida	Sec. 8-23-16, Rodessa field	Absp.	10,000
Shell Petroleum Corp., Box 1, Iowa	NW¼ Sec. 18-9s-6w, Jefferson Davis Parish	Absp.	15,000
Southwestern Gas & Elec. Co., Oil City	Gilliam, 1 mi.	Absp.	6,000

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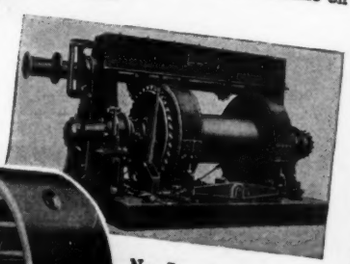

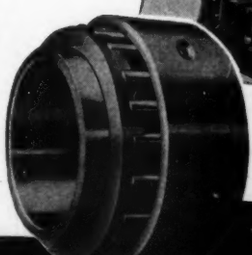

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Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Stanolind Oil & Gas Co., Gilliam	Oil City	Comp.	450
Standard Oil Co. of Louisiana, Trees	Caddo field, near Trees	C-A	3,999
Standard Oil Co. of Louisiana, Homer	Claiborne field, near Homer	C-A	4,678
Tide Water Oil Co., Rodessa	Rodessa	Absp.	50,000
United Carbon Co., Inc., Monroe, La.	Sec. 32-19-5, Ouachita Par.	Absp.	*4,000
United Carbon Co., Inc., Monroe, La.	Sec. 32-19-5, Ouachita Par.	Absp.	4,000
United Carbon Co., Inc., Monroe, La.	Sec. 29-16-7, Richland Par.	Absp.	*10,000
United Gas Public Service Co., Alto	Sec. 16-16n-6e, Richland	Absp.	30,000
United Gas Public Service Co., Bastrop	Sec. 31-20n-5e, Morehouse	Absp.	*1,300
United Gas Public Service Co., Cotton Valley	Sec. 17-21n-10w, Webster	Absp.	50,000
United Gas Public Service Co., Rodessa	Sec. 14-21n-15w, Caddo	Absp.	155,000
United Gas Public Service Co., Sugar Creek†	Sec. 6-19n-5w, Claiborne	Absp.	30,000
United Gas Public Service Co., Swartz	Sec. 32-19n-5e, Ouachita	Absp.	*2,500

*Shut down. †Owned jointly with Sugar Creek Syndicate.

MICHIGAN

Apex Gas, Inc., Mount Pleasant	Porter Twp., on J. W. Campbell farm	Comp.	5,000
Grimes, Otha H., Mount Pleasant	Greendale field	C-A	6,000
Grimes, Otha H., Mount Pleasant	Yost field	C-A	6,000

MONTANA

Glacier Production Co., Butte	Sec. 22-33n-5w, Glacier County	Absp.	16,000

NEW MEXICO

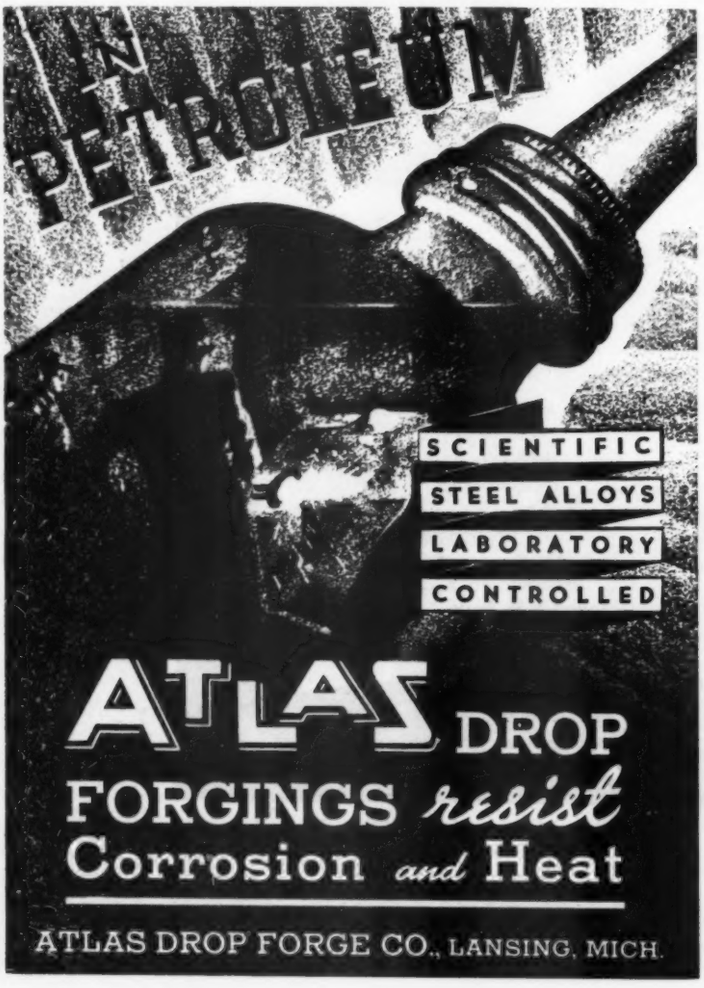
Continental Oil Co., Hobbs	Lea County	Absp.	30,000
Natural Gasoline Corp., Box 67, Monument	Sec. 36-19s-36e, and Sec. 1-20s-36e, Lea County	Absp.	50,000
Phillips Petroleum Co., Eunice	NE¼ Sec. 5-21-36, Lea County	Absp.	25,000
Phillips Petroleum Co., Hobbs	N½ NW¼ Sec. 4-19-38, Lea County	Absp.	40,000

OHIO

Hope Construction & Refining Co.	New Matamoras	Absp.	1,200
Ohio Producing & Refining Co., Cleveland	Sec. 22, Chippewa Twp., Wayne County	Char.	6,000
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	Archers Fork, Washington County	Comp.	200
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	Sycamore Valley, Monroe County	Comp.	200
Preston Oil Co., Elk	Stock Twp., Noble County	Absp.	2,000
Preston Oil Co., Homer	Burlington Twp., Licking County	Absp.	15,000
Preston Oil Co., Pavonia	Weller Twp., Richland County	Absp.	10,000
Preston Oil Co., Sugar Grove	Berne Twp., Fairfield County	Absp.	9,000
Preston Oil Co., York	York Twp., Medina County	Absp.	5,000
Reno Oil Co., Sistersville, W. Va.	Monroe Co.	Comp.	60
Tyler Oil Co., Sistersville, W. Va.	Monroe Co.	Comp.	40

OKLAHOMA

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Akin Gasoline Co., Tulsa	Bixby, Okla.	Comp.	300
Akin Gasoline Co., Tulsa	Dewey, Okla.	Comp.	300
Arthur Oil Co., Tulsa	Creek Co.	Comp.	300
Barnsdall Oil Co., Avant	SW NE SE Sec. 18-23-12	Absp.	2,600
Barnsdall Oil Co., Beggs	N½ NE Sec. 6-14-12	Absp.	3,600
Barnsdall Oil Co., Earlsboro	NE NE Sec. 15-9-5	Absp.	40,000
Barnsdall Oil Co., Osage	SW SW Sec. 20-21-9	Absp.	2,400
Barnsdall Oil Co., Tulsa	SE Sec. 5-20-12	Absp.	1,200
Bartlett Gasoline Co., Butler	Butler, 3 mi. south	Absp.	7,000
Carter Oil Co., Cromwell	NW Sec. 3-10n-8e, Seminole County	Absp.	25,000
Carter Oil Co., Fittstown	SE Sec. 30-2n-7e, Pontotoc County	Absp.	40,000
Carter Oil Co., Seminole	SE Sec. 15-9n-6e, Seminole County	Absp.	50,000
Carter Oil Co., Seminole	SW Sec. 2-10n-6e, Seminole County	Comp.	13,000
Carter Oil Co., Wilson	NW Sec. 23-4s-2w, Carter County	Absp.	6,000
Chase Gasoline Co., Sistersville, W. Va.	Muskogee Co.	Comp.	1,000
Chase Gasoline Co., Sistersville, W. Va.	Muskogee Co.	Comp.	1,000
Continental Oil Co., Britton	Oklahoma County	Absp.	12,000
Crosbie, J. E., Inc., Fittstown	Sec. 30-2-7, Pontotoc County	Absp.	60,000
Crosbie, J. E., Inc., Holdenville	Sec. 16-7-8, Hughes County	Absp.	20,000
Crosbie, J. E., Inc., Okemah	Sec. 29-12-10, Okfuskee County	Absp.	10,000
Crosbie, J. E., Inc., St. Louis	Sec. 15-7-4, Pottawatomie County	Absp.	30,000
Deep Rock Oil Corp., Cushing	Sec. 9-18-10	Absp.	2,200
Deep Rock Oil Corp., Mehan	Sec. 23-18-3	Absp.	500
Deep Rock Oil Corp., Shamrock	Sec. 4-16-7	Absp.	2,000
Deep Rock Oil Corp., Shamrock	Shamrock	Comp.	4,000
Devonian Oil Co., Tulsa	Sec. 22-17n-10e, Creek County	Absp.	20,000
Eagle Gasoline Co., Tulsa	Creek Co.	Comp.	1,000
Eagle-Picher Mining & Smelting Co., Henryetta	NE of Henryetta	Absp.	5,000
Eason Oil Co., Enid	SW¼ Sec. 34-17n-4w, Crescent field	Comb.	15,000
Eason Oil Co., Enid	NE¼ Sec. 12-24n-4w, Garber field	Comp.	3,000
Empire Oil & Refining Co., Konawa	NW¼ Sec. 9-6-6, Seminole County	Absp.	12,000
Empire Oil & Refining Co., Sasakwa	SE¼ Sec. 7-6-8, Seminole County	Absp.	25,000
Empire Oil & Refining Co., Seminole	SW¼ Sec. 14-8-6, Seminole County	Absp.	25,000
Empire Oil & Refining Co., Seminole	NE¼ Sec. 11-8-5, Seminole County	Comp.	9,000
Empire Oil & Refining Co., Seminole	SE¼ Sec. 24-9-6, Seminole County	Absp.	25,000
Empire Oil & Refining Co., Tallant	SE¼ Sec. 35-25-10, Osage County	Absp.	20,000
Empire Oil & Refining Co., Wanette	NE¼ Sec. 22-6-3, Pottawatomie County	Absp.	7,500
Empire Oil & Refining Co., Wewoka	NW¼ Sec. 19-7-8, Seminole County	Comp.	6,000
Enfisco Oil Corp., Tulsa	NE Sec. 17-17-13, Bixby	Comp.	1,000
Grimes Gasoline Co., Tulsa	Okemah	Absp.	5,000
Grimes, Otha H., and Roy O. Neal, Box 21, Drumright	Sec. 17-17n-7e	Absp.	5,700
Grimes, Otha H., and Charles W., Tulsa	Weleetka	Absp.	5,000



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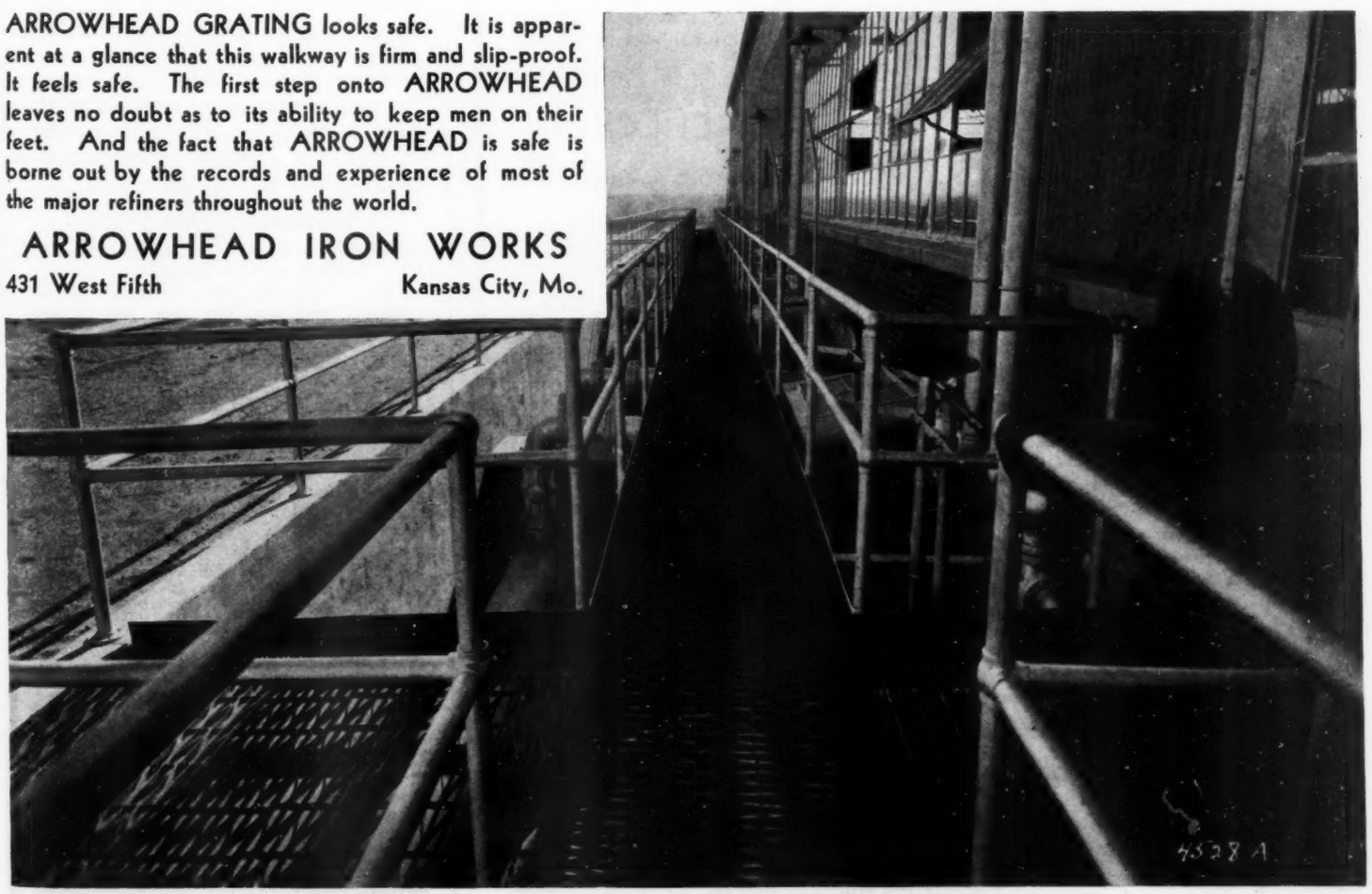

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Grimes, Otha H., Wetumka	Sec. 21-9n-10e, Hughes County	Absp.	3,500
Gulf Oil Corp., Tulsa	Sec. 16-17-12, Creek County	Comp.	17,000
Gulf Oil Corp., Tulsa	Sec. 3-14-8, Creek County	Absp.	2,000
Gulf Oil Corp., Tulsa	Sec. 1-21-7, Osage County	Comp.	1,400
Gulf Oil Corp., Tulsa	Sec. 24-27-5, Osage County	Absp.	8,000
Gulf Oil Corp., Tulsa	Sec. 14-7-6, Seminole County	Absp.	10,000
Gulf Oil Corp., Tulsa	Sec. 7-8-6, Seminole County	Absp.	25,000
Indian Territory Ill. Oil Co., Oklahoma City	Bodine, Sec. 24-11-3, Oklahoma Co.	Absp.	25,000
Indian Territory Ill. Oil Co., Oklahoma City	Button, Sec. 19-11-2, Oklahoma Co.	Absp.	25,000
Indian Territory Ill. Oil Co., Oklahoma City	Jones, Sec. 31-11-2, Oklahoma Co.	Absp.	25,000
Indian Territory Ill. Oil Co., Oklahoma City	Lemmon, Sec. 11-11-3, Oklahoma Co.	Absp.	25,000
Indian Territory Ill. Oil Co., Oklahoma City	Lot 285, Osage Co.	Absp.	1,000
Indian Territory Ill. Oil Co., Oklahoma City	Trosper Park, Sec. 12-11-3, Oklahoma Co.	Absp.	25,000
Indian Territory Ill. Oil Co., Oklahoma City	Verne, Sec. 13-11-3, Oklahoma Co.	Absp.	25,000
Lone Star Gas Co., Hollis	4 mi. NW Hollis	Absp.	12,000
Magnolia Petroleum Co., Dallas	Sec. 23-2s-3w, Carter County	Absp.	4,600
Magnolia Petroleum Co., Dallas	Sec. 7-18n-7e, Creek County	Absp.	18,000
Magnolia Petroleum Co., Dallas	Sec. 3-16n-7e, Creek County	Absp.	*6,500
Magnolia Petroleum Co., Dallas	Sec. 34-15n-5e, Lincoln County	Absp.	3,600
Magnolia Petroleum Co., Dallas	Sec. 6-19n-6e, Payne County	Absp.	2,500
Magnolia Petroleum Co., Dallas	Sec. 21-2n-7e, Pontotoc County	Absp.	30,000
Magnolia Petroleum Co., Dallas	Sec. 15-7n-4e, Pottawatomie County	Absp.	10,000
Magnolia Petroleum Co., Dallas	Sec. 32-8n-8e, Seminole County	Absp.	4,000
Magnolia Petroleum Co., Dallas	Sec. 10-9n-5e, Seminole County	Absp.	*6,300
McBride, W. C., Inc., St. Louis, Mo.	Sec. 18-23-12, Osage County	Comp.	1,500
Mid-Continent Petroleum Corp., Tulsa	E½ NW¼ Sec. 5-16-15	Comp.	4,000
Mid-Continent Petroleum Corp., Tulsa	NE¼ NW¼ Sec. 12-9-8	Absp.	6,000
Mid-Continent Petroleum Corp., Tulsa	NE¼ SW¼ Sec. 15-10-8	Absp.	50,000
Mid-Continent Petroleum Corp., Tulsa	NW¼ Sec. 8-15-6	Absp.	5,000
Mid-Continent Petroleum Corp., Tulsa	S½ SE¼ Sec. 28-17-14	Comp.	4,000
Mid-Continent Petroleum Corp., Tulsa	SE¼ SE¼ Sec. 22-17-7	Absp.	15,000
Mid-Continent Petroleum Corp., Tulsa	SW¼ Sec. 12-13-13	Absp.	5,000
Mid-Continent Petroleum Corp., Tulsa	W½ NW¼ Sec. 17-9-8	Absp.	4,000
Natural Gasoline Corp., Ardmore	Sec. 20-5s-1e, Carter County	Absp.	*5,000
Natural Gasoline Corp., Earlsboro	Sec. 16-9n-6e, Pottawatomie County	Absp.	*10,000
Natural Gasoline Corp., Harjo	Sec. 7-8n-5e, Pottawatomie County	Absp.	30,000
Natural Gasoline Corp., Healdton	Sec. 31-2s-2w, Carter County	Absp.	15,000
Natural Gasoline Corp., Oklahoma City	Sec. 30-11n-2w, Oklahoma County	Absp.	15,000
Natural Gasoline Corp., Seminole	Sec. 17-19n-6e, Seminole County	Absp.	*10,000
National Products Co., Pittsburgh, Pa.	Cleveland, Pawnee Co.	Absp.	1,550

Completely Original!
Entirely Different!
SPERRY-SUN'S
CORE ORIENTATION
SERVICE

The Sperry-Sun Well Surveying Company has established and now has ready for service a laboratory for the purpose of determining the orientation of cores.

The value of knowledge of the direction of dip is evident to any experienced operator or geologist, not only in the case of wildcat wells and core holes to determine structure, but in proven areas to determine when wells have passed through faults or crossed the axes of asymmetrical anticlines into areas from which they should be deflected.

The method employed is original and entirely different from those previously used. The superiority of Sperry-Sun's Polar Core Orientation (U. S. Patents 1,792,639; 1,778,981 and others pending) lies, not only in its accuracy but also in the fact that it does not interfere with the progress of drilling. The orientation is determined in a laboratory, to which selected cores, taken by any type core barrels in the ordinary course of drilling and properly marked, are shipped from any distance. No special equipment is required at the well, there is no loss of drilling time. The resulting saving in time when translated into dollars shows a substantial saving over former methods.

3 ways to Drill STRAIGHT to greater Profits

Use THE SELF CHECKING
H-K Clinograph
(Hewitt-Kuster)

"H-K" designed for open holes only—provides permanent, accurate, photographic records of inclination and direction on paper discs five minutes after removing instruments from hole. (U. S. Patents 1,812,994; 2,027,642 and others pending.)

Use THE SELF CHECKING
SURWEL Gyroscopic Clinograph

"SURWEL" provides a map of the well at all depths, prepared from actual photographic records, made while going in and coming out. (U. S. Patents 1,124,068; 1,812,994; 1,898,473; 1,959,141; 1,960,038; 2,006,556; 2,012,138; 2,012,152; 2,012,455; 2,012,456 and others pending.)

Use THE SELF CHECKING
SYFO Clinograph

"SYFO"—used on a wire line, as a "Go-Devil" inside the drill stem, or on sand or bailing line in open hole—affords quick, inexpensive daily records of vertical deviation in drilling, without use of dangerous acids. (U. S. Patents 1,962,634; 2,013,875 and others pending.)

SPERRY-SUN WELL SURVEYING CO.
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425 Petroleum Building

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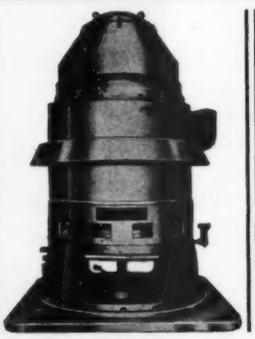

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All Pomona Pumps are built to specifications established by us thirty-five years ago and raised from time to time as new materials and better methods made higher standards possible. Self-imposed Pomona standards are higher than those required by any government or industrial engineer and the inherent character of Pomona Pumps has made them leaders throughout the world.

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Sales Offices:
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TURBINE PUMPS

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No. 3420
Cranks and Heads for 100 c.c. and 15 c.c. machines are interchangeable.

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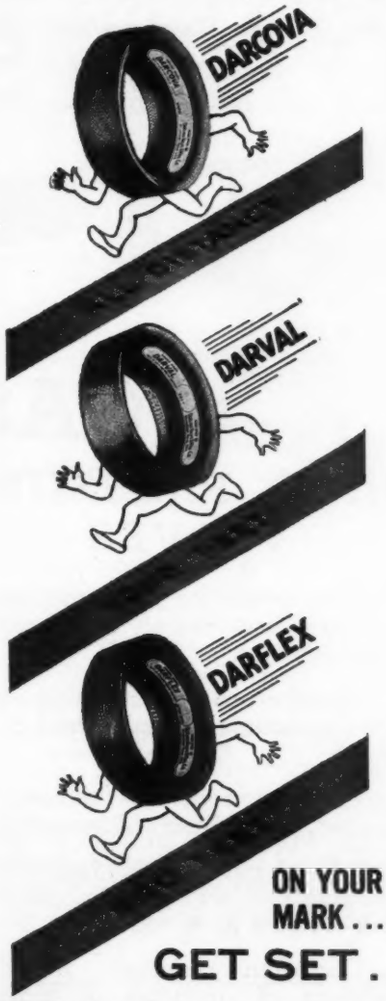
W. H. CURTIN & CO.
INCORPORATED
HOUSTON, TEXAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Neal Gasoline Co., Box 186, Osage	Sec. 13-21n-8e	Absp.	4,300
Neal Gasoline Co., Copan	Near Copan	Absp.	*1,200
Ohio Oil Co., Bristow	Creek County	C-A	5,000
Oklahoma Gasoline Plants, Inc., Sapulpa	Sec. 18-18-7e	C-A	10,000
Oklahoma Utilities Co., Bristow	Sec. 20-16-9, Creek County	Absp.	5,000
Oil State Gasoline Co., Tulsa	NE, Sec. 17-18n-13e	Comp.	4,000
Oil State Gasoline Co., Tulsa	NE, Sec. 13-19n-5e	Comp.	4,000
Peppers Gasoline Co., Oklahoma City	Enid, Okla.	Absp.	5,000
Phillips Petroleum Co., Bartlesville	Lima, NW NW Sec. 23-7-6, Seminole Co.	Absp.	20,000
Phillips Petroleum Co., Bartlesville	NE NE Sec. 26-27-5, Osage County	Absp.	45,000
Phillips Petroleum Co., Bartlesville	NW¼ NW¼ Sec. 12-12-2, Oklahoma County	Absp.	20,000
Phillips Petroleum Co., Bartlesville	Okla, S½ Sec. 1-11-3, Oklahoma Co.	Absp.	200,000
Phillips Petroleum Co., Bartlesville	Pershing, SE SE Sec. 6-24-10, Osage Co.	Absp.	6,000
Phillips Petroleum Co., Bartlesville	Reserve, SE¼ Sec. 16-24-7, Osage Co.	A-C	35,000
Phillips Petroleum Co., Bartlesville	SE NW Sec. 24-11-11, Okfuskee County	Absp.	17,000
Phillips Petroleum Co., Bartlesville	W½ SE¼ Sec. 31-14-3w, Oklahoma County	Absp.	40,000
Phillips Petroleum Co., Oklahoma City	NW¼ SW¼ Sec. 32-11-2w	Absp.	100,000
Phillips Petroleum Co., Bartlesville	Wetumka, N½ NW¼ Sec. 3-9-9, Hughes Co.	Absp.	20,000
Phillips Petroleum Co., Bartlesville	Wewoka, SW SW Sec. 33-8-8, Seminole Co.	Absp.	30,000
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	Sec. 29-25-11	Comp.	2,800
Powers and Quinlan, Box 696, Beggs	Sec. 5-14-12, Okmulgee County	Comp.	500
Powers and Quinlan, Box 696, Beggs	Sec. 2-14-12, Okmulgee County	Comp.	500
Powers, M. F., Box 136, Depew	Sec. 8-15-8, Creek County	Absp.	3,000
Pure Oil Co., Box 484, Depew	Sec. 5-15n-8e	Comp.	1,350
Pure Oil Co., Box 1277, Drumright	Sec. 32-18n-7e	Comp.	2,500
Pure Oil Co., Box 1127, Oilton	Sec. 32-19n-7e	Comp.	2,500
Pure Oil Co., Box 667, Seminole	Sec. 26-9n-6e	Comp.	5,300
Shell Petroleum Corp., Box 549, Drumright	NE¼ Sec. 8-17n-7e	Absp.	6,000
Shell Petroleum Corp., Box 78, Orlando	SW¼ Sec. 17-20n-2w	Absp.	20,000
Shell Petroleum Corp., Box 548, Wilson	NE¼ Sec. 8-4s-3w	Comp.	4,000
Shell Petroleum Corp., Braman	SW¼ Sec. 21-29n-1w	Absp.	6,000
Shell Petroleum Corp., Marland	NE¼ Sec. 2-23n-1w	Absp.	10,000
Shell Petroleum Corp., Marshall	SE¼ Sec. 19-19n-4w	Absp.	*7,500
Shell Petroleum Corp., Maud	SE¼ Sec. 7-8n-5e	Absp.	*15,000
Silurian Oil Co., St. Louis, Mo.	Avant	Comp.	1,200
Sinclair Prairie Oil Co., Box 368, Covington	W½ SW¼ Sec. 19-22-3	Absp.	20,000
Sinclair Prairie Oil Co., R.F.D. No. 1, Drumright	SW¼ SW¼ Sec. 28-18-7	Comp.	25,000
Sinclair Prairie Oil Co., Box 865, Seminole	NW¼ NW¼ Sec. 35-9-6	Absp.	70,000
Sinclair Prairie Oil Co., Box 787, Seminole	SW¼ NE¼ Sec. 10-8-6	Absp.	50,000
Sinclair Prairie Oil Co., Box 578, Shamrock	SW¼ SE¼ Sec. 28-18-7	Comp.	15,000
Sinclair Prairie Oil Co., Box 6, Shidler	SW¼ SE¼ Sec. 29-27-6	Absp.	30,000
Sinclair Prairie Oil Co., Box 80, St. Louis	SW¼ Sec. 24-7-4	C-A	30,000
Sinclair Prairie Oil Co., Box 4188, Oklahoma City	SE¼ NW¼ Sec. 30-11-2	Absp.	50,000
Skelly Oil Co., Box 37, Carter Nine	NE¼ NW¼ Sec. 9-26n-6e, Osage County	Absp.	22,500



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WILLIAMSPORT, PA.

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Model LE—the 55-horsepower size—Case oil field engine operating geared power unit near Breckenridge, Texas.

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Available with automatic cut-outs that stop the engine at the first flash of danger . . . one that works with a rise of temperature above normal . . . another that acts instantly if the oil pressure falls below normal. Fitted for natural gas, gasoline. or both, to suit any circumstances.

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Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Skelly Oil Co., Box 487, Fairfax	S½ NW¼ Sec. 10-25-6, Osage County	Absp.	23,000
Skelly Oil Co., Box 487, Fairfax	N½ SW¼ Sec. 3-25-6, Osage County	Absp.	17,500
Skelly Oil Co., Box 36, R. 2, Jennings	SW¼ NW¼ Sec. 15-20n-6e, Pawnee County	Absp.	2,500
Skelly Oil Co., Box 157, Lyman	NW¼ Sec. 11-27-5e, Osage County	Comp.	9,000
Skelly Oil Co., Box 536, Seminole	SW¼ Sec. 17-9n-6e, Seminole County	Absp.	14,000
Skelly Oil Co., Box 168, Slick	NW cor. Sec. 15-15n-10e, Creek County	Absp.	2,500
Skelly Oil Co., Box 413, Wynona	N½ SW¼ Sec. 24-24n-9e, Osage County	Absp.	3,500
Southland Gasoline Co., Tulsa	Sec. 33-19-7, Creek Co.	Comp.	2,000
Stanolind Oil & Gas Co., Tonkawa	Tonkawa, 4 mi. south	Absp.	10,000
Sterling Oil & Gas Co., Tulsa	SE, Sec. 1-21-11	Comp.	150
Texas Co. (Del.), Houston, Tex.	NE¼ Sec. 30-25n-8e, Osage County	Absp.	6,720
Texas Co. (Del.), Houston, Tex.	SE¼ SE¼ Sec. 2-14n-5e, Lincoln County	Absp.	9,560
Texas Co. (Del.), Houston, Tex.	W½ NW¼ Sec. 8-17n-12e, Creek County	Comp.	20,900
Utilities Production Corp., Tulsa	Jennings	Absp.	*1,500
Victor Gasoline Co., R.R. 3, Box 99, Stroud	Sec. 1-16-7, Creek County	Absp.	4,000
Victor Gasoline Co., Box 272, Bristow	Sec. 27-16-9, Creek County	Absp.	6,000
Warren Petroleum Co., Tulsa	†Sec. 30-2n-7e, Pottawatomie County	Absp.	60,000
Warren Petroleum Co., Tulsa	†Sec. 16-7n-8e, Seminole County	Absp.	30,000
Wentz, L. H., Oil Division, Ponca City	Sec. 34-25n-1w	Absp.	5,000
Wentz, L. H., Oil Division, Ponca City	Sec. 17-28n-1e	Absp.	3,000
Westoak Gasoline Co., Sayre	Sec. 7-9-23, Beckham Co.	Absp.	4,000
Wright, Rosa B., Sapulpa	Kellyville	Absp.	5,000
Wolverine Petroleum Corp., Wolco	E½ Sec. 24-24n-11e	Comp.	10,000
Wolverine Petroleum Corp., Wilson	SW¼, Sec. 22-4s-2w	Absp.	10,000

*Shut down. †Jointly owned with J. E. Crosbie, Inc.

PENNSYLVANIA

Alum Rock Gas Co., Port Allegany	†Fern	Comp.	150
Bayliss & Fasenmeyer, Titusville	Titusville, 2 mi. S	Comp.	1,000
Carnahan, C. E. and Lida M., Tidioute	Tidioute, ½ mi. W	Comp.	500
Carnegie Natural Gas Co., Lone Pine	Washington Co.	Absp.	1,000
Carnegie Natural Gas Co., Waynesburg	Greene Co.	Absp.	4,500
Carpenter, M. A., Karns City	Fairview Twp.	Comp.	200
Chambers Oil Co., Oil City	Warren Co.	Comp.	150
Clinger Oil & Gas Co., Tidioute	Forest Co.	Comp.	750
Clinger Oil & Gas Co., Tidioute	Warren Co.	Comp.	750
Cochran, John G. & Co., Sheffield		Absp.	*1,000
Coffin, J. C., Chicora	Chicora	Comp.	75
Coffin, C. J., Chicora	Karns City	Comp.	75
Columbia Gas & Electric Corp., Heard	Finley Twp., West Co.	Absp.	2,500
Columbia Gas & Elec. Corp., McKinley	Elk Co.	Absp.	1,500
Columbia Gas & Elec. Corp., Majorville	West Twp.	Absp.	7,000
Columbia Gas & Elec. Corp., Waynesville	Franklin Twp.	Absp.	4,000
Cook Oil Lease, Kellettville	Kingsley Twp.	Comp.	225
Daugherty, C. R., Butler	Herman, Butler Co.	Comp.	30

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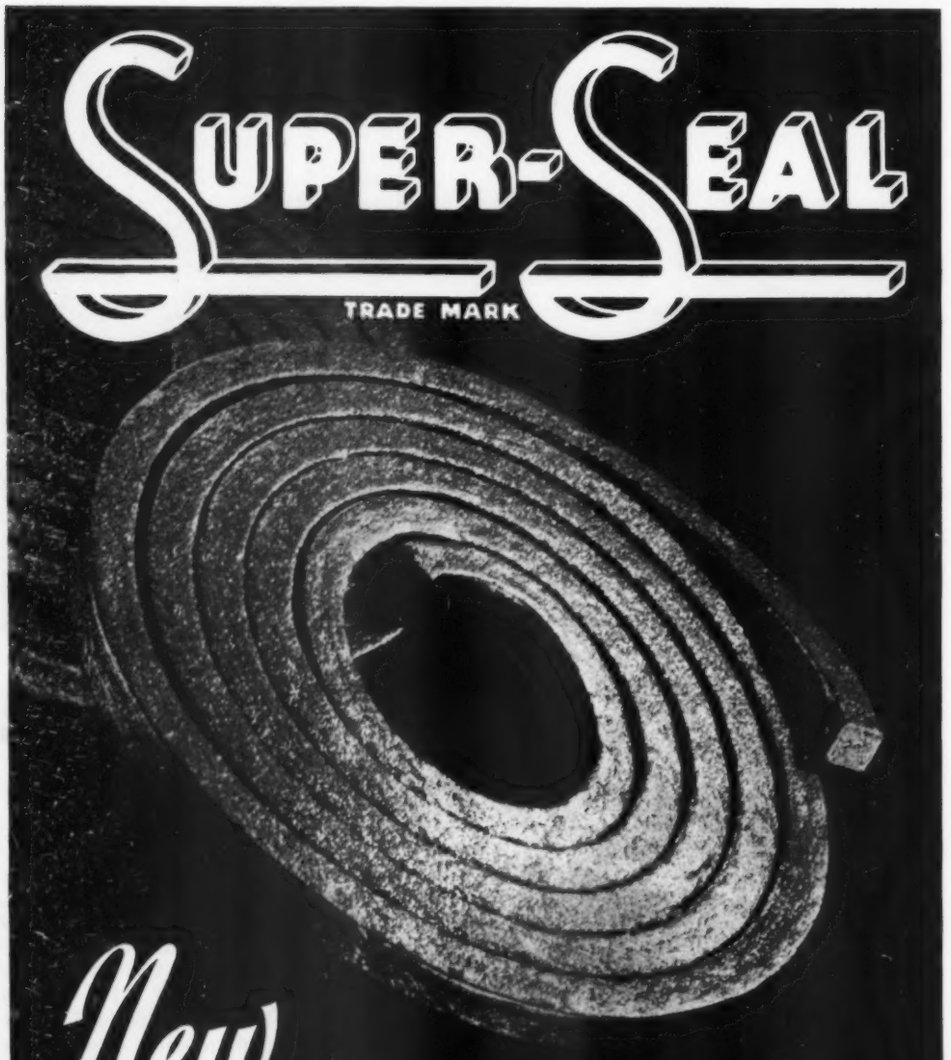

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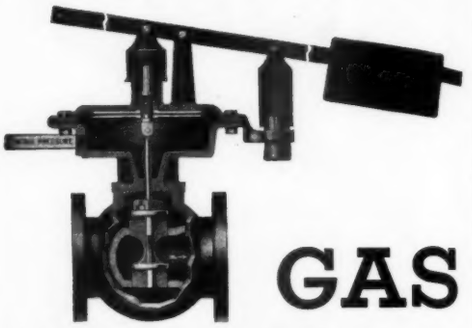

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Tulsa, Dallas, Houston
Bert W. Paul, West Coast Representative, Los Angeles

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Daugherty, C. R. & Co., Butler	Oakdale, Allegany Co.	Comp.	70
Daugherty, M. G. and C. R., Butler	Petrolia, Butler Co.	Comp.	45
Dempseytown Gas Co., Port Allegany	Leeper	Comp.	100
Dempseytown Gas Co., Port Allegany	Shippenville	Comp.	60
Dempseytown Gas Co., Port Allegany	Venus	Comp.	25
Dunlap, H. G., Chicora	Donegal Twp.	Comp.	10
Edwards, E. A., Titusville	Titusville	Comp.	170
Elswerth, Hefron & Co., Arthur	Lucinda	Comp.	*400
Ellenburger, W. J., & Sons, Karns City	Karns City	Comp.	300
Elliott Bros., Chicora	Chicora	Comp.	500
Equitable Gas Co., Clarksville	Deemston Twp., Washington Co.	Absp.	2,000
Equitable Gas Co., Rogersville	Center Twp., Greene Co.	Absp.	10,000
Federal Oil & Gas Co., McDonald	McDonald	Comp.	100
Fleming, J. E., Titusville	Warren Co.	Comp.	500
Fleming Oil Co., Titusville	Howe Twp., Forest Co.	Comp.	100
Forest Chemical Co., Sheffield	Sheffield Twp.	Absp.	*300
Forest Oil & Gas Co., McDonald	Clinton, 3 mi. N	Comp.	300
Hadden, James B., Sheffield	Henry's Mill	Comp.	100
Haskell Bros., Pleasantville	Southwest Twp., Warren Co.	Comp.	100
Haskell, Roth & Bayliss, Tidioute	Triumph Twp., Warren Co.	Comp.	1,000
Hickey & Rieg, Clarendon	Henry's Mill	Comp.	300
Hope Construction & Refining Co.	Brave	Absp.	20,000
Hope Construction & Refining Co.	Imperial	Char.	3,600
Hope Construction & Refining Co.	McKeesport	Char.	*2,600
Jackson, Fred W., Chicora	Chicora	Comp.	360
Jennings, E. H., Bros. Co., Pittsburgh	Fayette Twp., Allegheny Co.	Comp.	1,000
Jennings, E. H., Bros. Co., Pittsburgh	Fayette Twp., Allegheny Co.	Comp.	150
Jennings, E. H., Bros. Co., Pittsburgh	Wetzel Co.	C-A	1,000
Jennings, E. H., Bros. Co., Pittsburgh	Wetzel Co.	C-A	100
Mars Co., The, Clarion	Paint Twp., Clarion Co.	Absp.	*1,800
Mars Co., The, Endeavor	Hickory Twp., Forest Co.	Absp.	*1,500
Mars Co., The, Lewis Run	Lewis Run	Absp.	*6,500
Mars Co., The, Van	Van	Absp.	7,500
Mars Co., The, Venus	Pinegrove Twp., Venango Co.	Absp.	4,000
Montgomery, James B., McKees Rocks	McKees Rocks	Comp.	100
Moore, Way & Harrison, Titusville	Titusville	Comp.	150
Myers Bros. & Hazzard, Tidioute	Tidioute	Comp.	100
National Gasoline Co., Grand Valley	Grand Valley	Comp.	250
National Gasoline Co., Grand Valley	West Hickory	Comp.	250
North Penn Gas Co., Port Allegany	Shinglehouse	Absp.	*600
Pennsylvania Fuel Supply Co., Pittsburgh	Clarion	C-A	*800
Pittsburgh Oil & Gas Co., Pittsburgh	Clarion	Comp.	100
Pittsburgh Oil & Gas Co., Pittsburgh	Fairview Twp., Butler Co.	Comp.	200
Pittsburgh Oil & Gas Co., Pittsburgh	Miola	Comp.	100
Pittsburgh Oil & Gas Co., Pittsburgh	R. D. No. 7, Butler	Comp.	100
Porter Bros., Catfish	Catfish, 1 mi. E	Comp.	100
President Oil Co., Emlenton	Bruin, 2 mi. W	Comp.	50
President Oil Co., Emlenton	Emlenton, 2 mi. SW	Comp.	50
President Oil Co., Emlenton	Fryburg, 6 mi. N	Comp.	500
Red Brush Oil Co., Tidioute	Near Tionesta	Comp.	40
Riddle Farm Oil Co., Karns City	Karns City, ½ mi. S	Comp.	50
Ritzert Bros., Chicora	Chicora	Comp.	70

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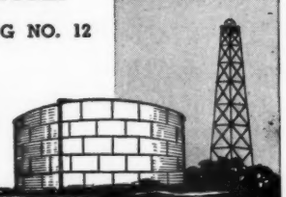

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FORGED STEEL LUG NUT UNIONS

Quick Opening Quick Closing

can be applied with *either* HAMMER *or* WRENCH

These Lug Nut Unions are hot forged from solid steel bars. They are the ideal union for quick closing and quick opening purposes, as drilling rigs, loading racks, well head hookups, refineries, and gasoline plants. Triangular surface of union nut eliminates distortion or breaking. Eliminates glancing blows from hammer by presenting a straight surface to hammer face. Finished either coated or Udylited. All sizes from 1" to 3".

Catawissa Forged Steel Standard Unions, ball to angle seat, the most efficient and economical union for general service.

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Stocked by leading supply jobbers in all oil fields.

THE CENTRAL FORGING CO., CATAWISSA, PA.

Forged Steel Unions—Union Swing Check Valves.

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Sand Hill Lease, Tidioute	Perry Twp., Warren Co.	Comp.	100
Say, George K., Estate, Karns City	Triumph Twp., Warren Co.	Comp.	40
Sloan & Zook Co., Bradford	Kane	Absp.	1,500
South Penn Oil Co., Pittsburgh	Baden	Comp.	50
South Penn Oil Co., Pittsburgh	Bradford	Comp.	550
South Penn Oil Co., Pittsburgh	Chaffee	Comp.	25
South Penn Oil Co., Pittsburgh	Chicora	Comp.	150
South Penn Oil Co., Pittsburgh	Evans City	Comp.	25
South Penn Oil Co., Pittsburgh	Evans City	Comp.	150
South Penn Oil Co., Pittsburgh	Evans City	Comp.	450
South Penn Oil Co., Pittsburgh	Evans City	Comp.	125
South Penn Oil Co., Pittsburgh	Freeport	Absp.	600
South Penn Oil Co., Pittsburgh	Guffey	Comp.	150
South Penn Oil Co., Pittsburgh	Henrys Mills	Comp.	300
South Penn Oil Co., Pittsburgh	Hooker	Comp.	100
South Penn Oil Co., Pittsburgh	Noblestown	Comp.	1,600
South Penn Oil Co., Pittsburgh	Noblestown	Comp.	125
South Penn Oil Co., Pittsburgh	Parker	Comp.	100
South Penn Oil Co., Pittsburgh	Pleasantville	Comp.	300
South Penn Oil Co., Pittsburgh	Porcupine	Comp.	650
South Penn Oil Co., Pittsburgh	President	Comp.	500
South Penn Oil Co., Pittsburgh	South Heights	Comp.	550
South Penn Oil Co., Pittsburgh	Sturgeon	Comp.	1,500
South Penn Oil Co., Pittsburgh	Taylorstown	Comp.	100
South Penn Oil Co., Pittsburgh	Tiona	Comp.	450
South Penn Oil Co., Pittsburgh	Titusville	Comp.	100
South Penn Oil Co., Pittsburgh	Washington	Comp.	100
Stephens, W. J., Grand Valley	Grand Valley	Comp.	100
Success Oil Co., Titusville	Pioneer	Comp.	1,500
Surety Oil Co., Titusville	Titusville	Comp.	1,000
Tarbell & Co., Grand Valley	Grand Valley	Comp.	80
Thomas, R. L., Tidioute	Triumph Twp., Warren Co.	Vac.	250
Tompsett Bros., Tidioute	Triumph Twp., Warren Co.	Vac.	500
Triangle Co., McKees Rocks	McCoy Road	Comp.	100
Triangle Co., McKees Rocks	Pine Hollow Road	Comp.	300
Triumph Petroleum Co., Tidioute	Triumph Twp., Warren Co.	Comp.	200
Wahl, A. R., Evans City	Forward Twp., Butler Co.	Comp.	300
Warner-Caldwell Oil Co., Titusville	Church Run field, Oil Creek Twp., Crawford Co.	Comp.	1,000
Wheeler, D. H., Petrolia	Petrolia, 1½ mi. SE	Comp.	200
Will, Jacob W., McDonald	Canonsburg	Comp.	50

*Shut down. †Affiliate of Dempseytown Gas Co.

TEXAS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Airolene Gasoline Corp., Tulsa	NW¼ Sec. 9, Blk. 27, H.& G.N. Sur., Wheeler Co.	Absp.	8,000
Anzac Oil Corp., Coleman	M. T. Overall lse., C.H.&H. R.R. Sur. 12, Blk. 1, Coleman Co.	Comp.	1,000
Arab Gasoline Corp., Eastland	SE¼ Sec. 17, Blk. 4, H.&T.C. R.R. Sur., Eastland Co.	Absp.	20,000
Arkansas Fuel Oil Co., Shreveport, La.	Smith lse., Castleberry hrs., Gregg Co.	Absp.	25,000
Big Lake Oil Co., Pittsburgh, Pa.	Sec. 2, Blk. 2, Reagan Co.	Absp.	50,000
Breckenridge Gasoline Co., Breckenridge	Breckenridge	Absp.	12,000
Buckeye Natural Gasoline Corp., Magic City	Sec. 41, H.&G.N. R.R. Sur., Blk. 24, Wheeler Co.	Absp.	12,000
Canadian River Gas Co., Channing	Sec. 33, El.&R.R.R.C. Sur., Moore Co.	Absp.	30,000
Cannon Gasoline Co., Amarillo	2 mi. N Amarillo	Comp.	5,000
Cargray Corp., Amarillo	Sec. 46, Blk. 4, I.&G.N. R.R. Sur., Carson Co.	Absp.	250,000
Chief Refining Co., Gladewater	Johnson lse., M. Dillard Sur.	Comp.	*5,000
Clymore Co., Inc., Refugio	Refugio	Absp.	30,000
Coltexo Corp., Lefors	NW¼ Sec. 2, A.C.H.&B. Sur., Blk. 1, Gray Co.	Absp.	40,000
Columbian Gasoline Corp., Shamrock	SE¼ Sec. 46, H.&G.N. Sur., Blk. 17, Wheeler Co.	Absp.	10,000
Consolidated Gasoline Co., Eastland	Eastland, 2 mi. W	Absp.	12,000
Crescent Gasoline Co., Overton	Overton	Comp.	*3,000
Danciger Oil & Refineries, Inc., Fort Worth	Danciger	Absp.	40,000
Danciger Oil & Refineries, Inc., Fort Worth	Lefors	Absp.	20,000
Darby Lynde Co., Electra	Burkburnett Townsite	Comp.	*5,000
Darby Lynde Co., The, Tulsa	Electra	Comp.	5,000
Deep Oil Development Co., Wichita Falls	Wilson Est., A.T.N.C. Lds., Blk. 119, Archer Co.	Comp.	4,000
Desdemona Gasoline Co., Fort Worth	Desdemona	Absp.	3,500
Empire Oil & Refining Co., Odessa	SE¼ SE¼ Sec. 34-43-1n. Ector Co.	Absp.	35,000
Empire Oil & Refining Co., Pampa	N½ Sec. 136, Blk. 3, I.&G.N. Sur., Gray Co.	Absp.	30,000
General American Oil Co., Shreveport, La.	Gladewater	Comp.	12,000
Gladewater Gasoline Co., Gladewater	J. S. Crosby Sur.	Comp.	*5,000
Graham Oil & Gas Co., Graham	Morrison farm, Hammond Sur.	Absp.	8,000
Gregg-Tex Gasoline Corp., Longview	Sanchez Sur., Gregg Co.	Comp.	100,000
Gulf Refining Co., Monahans	Ward Co.	Absp.	25,000
Gulf Refining Co., Overton	Overton	Comp.	25,000
Hanlon Gasoline Co., Tulsa	2 mi. S Breckenridge	Absp.	50,000
Hanlon Gasoline Co., Tulsa	4 mi. NE Gladewater	Comb.	150,000
Henderson Co., Amarillo	Stanford	Absp.	150,000
Hercules Gasoline Co., Kilgore	Kilgore	Comp.	36,000
Huber Petroleum Co., J. M., Borger	Johnson lse., Sec. 28, Blk. 2, A.&B. Sur., Hutch. Co.	Absp.	25,000
Humble Oil & Ref. Co., Bellville	Austin Co.	Absp.	10,000
Humble Oil & Ref. Co., Conroe	Montgomery Co.	Absp.	14,000
Humble Oil & Ref. Co., Neches	Anderson Co.	C-A	2,000
Humble Oil & Ref. Co., Overton	Kilgore, Rusk Co.	C-A	7,000
Humble Oil & Ref. Co., Overton	R. E. L. Silvey lse., Rusk Co.	Absp.	16,000
Humble Oil & Ref. Co., Overton	J. M. Jernigan tr., Rusk Co.	Absp.	12,000
Humble Oil & Ref. Co., Rising Star	Brown Co.	Absp.	2,780
Humble Oil & Ref. Co., Tomball	J. D. Reid lse., Harris Co.	Absp.	47,000
La Salle Petroleum Co., Box 576, Burkburnett	Burkburnett	Comp.	*8,000
Lisbon Gasoline Co., Inc., Shreveport	Rusk Co.	Comp.	25,000
Lisbon Gasoline Co., Inc., Shreveport	Rusk Co.	Comp.	20,000
Lone Star Gasoline Co., Box 1452, Breckenridge	Breckenridge	Absp.	40,000
Lone Star Gasoline Co., Box 788, Ranger	Eastland	Absp.	6,500
Lone Star Gasoline Co., Box 788, Ranger	Ranger (3)	Absp.	70,000
Lone Star Gas Co., Box 488, Ranger	9 mi. S Ranger	Comp.	*8,000
Lone Star Gas Co., Gordon	2 mi. E Gordon	Absp.	15,000
Lone Star Gas Co., Petrolia	3 mi. S Petrolia	Absp.	15,000
Lone Star Gas Co.,R.F.D. No. 1, Cisco	7 mi. S.E. Moran	Absp.	5,000
Lone Star Gas Co., Sipe Springs	8 mi. Rising Star	Comp.	*1,000
Lone Star Gas Co., Trinidad	2 mi. S.E. Trinidad	Absp.	30,000
Magnolia Petroleum Co., Dallas	Matt Finch Sur., Eastland Co.	Absp.	5,000
Magnolia Petroleum Co., Dallas	Sec. 17, Blk. 13, H.&T.C. Sur., Wilbarger Co.	Comp.	5,000
Magnolia Petroleum Co., Dallas	Smelzer Sur., Eastland Co.	Comp.	4,500
Magnolia Petroleum Co., Dallas	Sec. 39, Blk. 24, H.&G.N. Sur., Wheeler Co.	Absp.	*1,400
Magnolia Petroleum Co., Dallas	Sec. 91, Blk. 4, I.&G.N. Sur., Carson Co.	Absp.	4,500
Magnolia Petroleum Co., Dallas	Sec. 30, Blk. B-2, H.&G.N. Sur., Gray Co.	Comb.	9,500
Magnolia Petroleum Co., Dallas	Sec. 152, Blk. 3, I.&G.N. Sur., Gray Co.	Absp.	9,000
Magnolia Petroleum Co., Dallas	Sec. 170, Blk. 3-T, T.&N.O. Ry. Sur., Moore Co.	Absp.	20,000
Magnolia Petroleum Co., Dallas	Sec. 1, Blk. 26, P.S.L. Sur., Wichita County	Absp.	18,000
Magnolia Petroleum Co., Dallas	Wm. Dubose Sur., Wichita Co.	Comp.	4,000
Manhattan Gasoline Co., Sinton	Sinton	Absp.	12,000
Marr Natural Gasoline Co., Tyler	L. N. Sparks Sur., Rusk Co.	C-A	5,000
Midland Gasoline Co., Conroe	Conroe field, Montgomery Co.	Absp.	15,000
Natural Gasoline Corp., Tulsa, Okla.	Chas. Betts Sur. No. 625, Brown Co.	Absp.	20,000
Nine Oaks Gasoline Corp., Gladewater	Gladewater	Comp.	1,000
Ohio Oil Co., Eliasville	Stephens Co.	Absp.	15,000
Ohio Oil Co., Eliasville	Stephens Co.	Absp.	10,000
Parade Gasoline Co., Inc., Shreveport	C. C. and J. E. Giles lse., Joiner area, Rusk Co.	Absp.	100,000
Phillips Petroleum Co., Bellco	NE NW Sec. 51, H.&G.N. Sur., Wheeler Co.	Absp.	12,000
Phillips Petroleum Co., Bowers	W½ Sec. 62, H.&G.N. Sur., Blk. B-2, Gray Co.	Absp.	50,000
Phillips Petroleum Co., Canadian	NW SE Sec. 1, Blk. XO2, Hutchinson Co.	Absp.	20,000
Phillips Petroleum Co., Carson	W C Sec. 115, I.&G.N. Sur., Blk. 5, Carson Co.	Absp.	20,000
Phillips Petroleum Co., Eliasville	6.88 ac., N½ T.E.&L. Sur., 1,174, Stephens Co.	Absp.	12,000
Phillips Petroleum Co., Frankell	5 ac., SE SW sec. 51, T.&P. Sur., Blk. 6, Stephens Co.	Absp.	8,500
Phillips Petroleum Co., Gorman	SE cor. Thos. Mulryne Sur. A-377, Eastland Co.	Absp.	8,000
Phillips Petroleum Co., Gray	E½ Sec. 32, H.&G.N. Sur., Blk. 2, Gray Co.	Absp.	100,000
Phillips Petroleum Co., Herron City	SE Sec. 20, P. J. Humphrey Sur. A-153, Young Co.	Absp.	9,000
Phillips Petroleum Co., Hohertz	12 ac., Sec. 63, Blk. 4, T.&P. R.R. Sur., Stephens Co.	Absp.	5,000
Phillips Petroleum Co., Ibex	NW¼ Sec. 28, B.A.L. Sur., Shackelford Co.	Absp.	20,000
Phillips Petroleum Co., Johnson	Cen. 60 ac., S½ Sec. 69, Blk. 46, H.&T.C. Sur., Hutchinson Co.	Absp.	50,000
Phillips Petroleum Co., Judkins	W 60 ac., N½ S½ Sec. 1, University Land, Blk. 35, Ector Co.	Absp.	15,000
Phillips Petroleum Co., Lafors	NE¼ NE¼ Sec. 56, Blk. 25, H.&G.N. Sur., Gray Co.	Absp.	15,000
Phillips Petroleum Co., McCamey	NE NE Sec. 216, C.C.S.D.& R.G.N.G.R.R. Sur., Blk. F, Crane Co.	Absp.	30,000
Phillips Petroleum Co., North	SW¼ Sec. 35 and NW¼ Sec. 36, I.&G.N. Sur., Blk. 3, Gray Co.	Absp.	60,000
Phillips Petroleum Co., Pampa	W½ SW¼ Sec. 88, H.&G.N. Sur., Blk. B-2, Gray Co.	Absp.	60,000
Phillips Petroleum Co., Panhandle	SW¼ Sec. 113, I.&G.N.R.R. Sur., Blk. 5, Carson Co.	Absp.	15,000
Phillips Petroleum Co., Pantex	SE cor., Mary Whitley Sur., Blk. 8, Hutchinson Co.	Absp.	50,000
Phillips Petroleum Co., Pioneer	W cen. part W. A. Eaken 132-ac. tr., Eastland Co.	Absp.	15,000
Phillips Petroleum Co., Rock Creek	N NW Sec. 22, Blk. Y, A.&B. Sur., Hutchinson Co.	Absp.	60,000
Phillips Petroleum Co., South Bend	20 ac. N cen. J. Garrett Sur. A-108, Young Co.	Absp.	9,000
Phillips Petroleum Co., Sanford	Sec. 81, Blk. 46, H.&T.C. R.R. Sur., Hutchinson Co.	Absp.	20,000
Phillips Petroleum Co., Texroy	SE Sec. 3, Blk. B-3, D.&S.E. R.R. Sur., Hutchinson Co.	Absp.	50,000
Pure Oil Co., Box 22-J, Van	Van Zandt Co.	C-A	28,000
Roeser & Pendleton, Inc., Fort Worth	8 mi. NW Albany	Absp.	30,000
Roeser & Pendleton, Inc., Fort Worth	6 mi. W Albany	Absp.	*15,000
Sabine Valley Gasoline Co., Inc., Longview	Mary Scott Sur., Laura Howard farm, Gregg Co.	Comp.	40,000
Shamrock Oil & Gas Corp., Lefors	Sec. 50, H.&G.N. Sur., Blk. 25, Gray Co.	Absp.	6,000
Shamrock Oil & Gas Corp., Sunray	Sec. 399, Blk. 44, H.&T.C. R.R. Sur., Moore Co.	Absp.	60,000
Shell Petroleum Corp., Box 338, Skellytown	SE¼ Sec. 107, Blk. 4, I.&G.N. Sur.	Absp.	25,000
Shell Petroleum Corp., Box 338, Skellytown	NW¼ Sec. 113, Blk. 4, I.&G.N. Sur.	Absp.	8,000
Shell Petroleum Corp., R. 2, Pampa	SW¼ Sec. 83, Blk. 3, I.&G.N. Sur.	Absp.	15,000
Sinclair Prairie Oil Co., Box 1674, Longview	J. Mosely Sur., Boston Moore 140 ac.	C-A	55,000
Sinclair Prairie Oil Co., Box CC, Arp	F. B. Wilson lse., R. McAnulty Sur.	C-A	50,000
Skelly Oil Co., Box 816, Burkburnett	Burkburnett Townsite	Comp.	7,500
Skelly Oil Co., Box 128, Skellytown	E½ SW¼ Sec. 124, Blk. 4, I.&G.N. Sur., Carson Co.	Absp.	23,000
Skelly Oil Co., Box 128, Skellytown	NE¼ Sec. 174, Blk. 3, Gray Co.	Absp.	18,000
Skelly Oil Co., Box 128, Skellytown	S½ Sec. 88, Blk. 4, I.&G.N. R.R. Sur., Carson Co.	Absp.	25,000
Skelly Oil Co., Stinnett	NW cor. J. W. Proctor Sur., Moore County	Absp.	8,000
Skelly Oil Co., Box 36, Whittenburg	SW cor. Sec. 4, Blk. B-4, D.&S.E. Ry. Sur., Hutchinson Co.	Absp.	9,000
Smith Bros. Ref. Co., McLean	Kermit	Absp.	50,000
Smith Bros. Ref. Co., McLean	McLean	Absp.	40,000
Southern Minerals Corp., Corpus Christi	Sur. 406, Nueces Co.	Absp.	13,000
Standard Oil Co. of Texas, El Paso	Sec. 10, Blk. 34, Ward Co.	C-A	20,000
Texas Co. (Dela.), Houston	B.B.B.&C. R.R. Sur., Blk. A-54, Archer Co.	Comp.	11,400
Texas Co. (Dela.), Houston	H.&G.N. Sur. A-654, Wichita Co.	Comp.	14,000
Texas Co. (Dela.), Houston	Jackson Haden Sur. A-90, Wichita Co.	Comp.	33,600
Texas Co. (Dela.), Houston	S.P. R.R. Sur., Sec. 26, Blk. L, Foard Co.	Absp.	6,750
Texas Pacific Coal & Oil Co., Fort Worth	Caddo	Absp.	10,000
Texas Pacific Coal & Oil Co., Fort Worth	Strawn	Absp.	5,000
Texoma Natural Gas Co., Fritch	Sec. 5, Blk. Y-2, Hutchinson Co.	Absp.	70,000
Tucker Oil Co., Wichita Falls	5 mi. N.W. Burkburnett, Blk. 83, R.R.V. Lds., Wichita Co.	Comp.	3,000
United Carbon Co., Inc., Breckenridge	Stephens Co.	Absp.	*4,000
United Gas Public Service Co., Agua Dulce	Nueces Co.	Absp.	45,000
United Gas Public Service Co., Latex	Panola Co., Jane Thorpe Sur.	Absp.	8,000
United Gas Public Service Co., Refugio	Lot 2, Sec. 6, Refugio Town Tract, Refugio Co.	Absp.	25,000
Waggoner, W. T., Estate, Vernon	H.&T.C. Rv. Sur., Sec. 42, Blk. 4, Wilbarger Co.	Absp.	12,000
West Texas Gas Co., Lubbock	Sec. 45, Blk. 2, A.B.&M. Sur., Potter Co.	Absp.	30,000
Wilcox, H. F., Oil & Gas Co., Tulsa	Pampa	Comp.	5,000

*Shut down.

WEST VIRGINIA

American Oil Development Co., Frew	Tyler Co.	Comp.	1,000
American Oil Development Co., Hebron	Pleasants Co.	Comp.	200
American Oil Development Co., Meadville	Tyler Co.	Comp.	200
Blue Creek Oil & Gas Co., Charleston	Blue Creek	Comp.	3,500
Carbide & Carbon Chemicals Corp., New York City	Diamond	Comp.	2,500

BRADEN

Sectional Buildings

FOR GASOLINE PLANTS

BRADEN STEEL CORPORATION TULSA OKLA

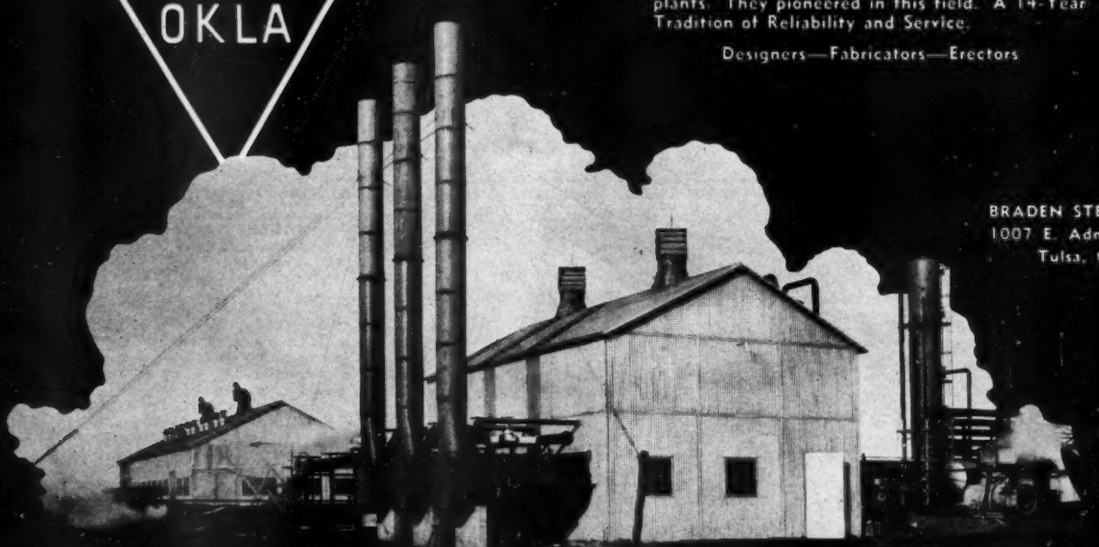
SAVE MONEY 6 WAYS

BRADEN Sectional Steel Buildings offer the Natural Gasoline Manufacturer 6 important savings:

(1) Low First Cost, as they are constructed completely from standardized sections; (2) Low Erection Cost, as parts are easily and quickly bolted together; (3) Low Maintenance, due to extraordinary durability; (4) 100% Portability; (5) 100% Re-erectability; (6) Standard Materials throughout, assuring quick replacements in case of damage.

BRADEN Buildings are in wide use for gasoline plants. They pioneered in this field. A 14-Year Tradition of Reliability and Service.

Designers—Fabricators—Erectors



BRADEN STEEL CORP.
1007 E. Admiral Blvd.
Tulsa, Okla.

DETAILS IN 1937 COMPOSITE CATALOG

BRADEN

SECTIONAL STEEL BUILDINGS

Company and plant address—	Field location—	Type of plant	Daily cap'y. (gals.)
Carbide & Carbon Chemicals Corp., New York City	Hastings	Comp.	1,000
Carnegie Natural Gas Co., Hundred	Hundred	Absp.	3,300
Carnegie Natural Gas Co., Underwood	Underwood	Absp.	3,000
Chemical Oil & Gas Co., Pittsburgh, Pa.	Grantsville	C-A	500
Dinsmoor & Co., St. Marys	Pleasants Co.	Comp.	400
Dun Mar Oil & Gas Co., Fairview	Jarke Run	Comp.	50
Falling Rock Cannel Coal Co., Weir	Weir	Absp.	3,000
Federal Oil & Gas Co., Elizabeth	Elizabeth	Comp.	250
Federal Oil & Gas Co., Weston	Weston, 8 mi. S	Comp.	500
Hapgood, R. T., & Co., Charleston	Cedar Grove	Char.	5,000
Henaghan & Hanlon, Inc., Sistersville	Finch	Comp.	1,000
Henaghan & Hanlon, Inc., Sistersville	Harrisville	Comp.	1,000
Henaghan & Hanlon, Inc., Sistersville	Harrisville	Comp.	5,000
Henaghan & Hanlon, Inc., Sistersville	Hebron	Comp.	3,000
Henaghan & Hanlon, Inc., Sistersville	Highland	Comp.	2,000
Henaghan & Hanlon, Inc., Sistersville	Highland	Comp.	12,000
Henaghan & Hanlon, Inc., Sistersville	Pike	Comp.	1,500
Henaghan & Hanlon, Inc., Sistersville	Pike	Comp.	3,000
Henaghan & Hanlon, Inc., Sistersville	Rock Run	Comp.	1,000
Henaghan & Hanlon, Inc., Sistersville	West Union	Comp.	500
Hope Constr. & Ref. Co., Pittsburgh, Pa	Barren Creek	Absp.	12,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Bristol	Absp.	8,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Pine Grove	Absp.	40,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Rachel	Absp.	10,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Salem	Absp.	4,000
Hope Constr. & Ref. Co., Pittsburgh, Pa	Spencer	Absp.	*1,000
Hope Constr. & Ref. Co., Pittsburgh, Pa.	St. Clair	Absp.	2,500
Hope Constr. & Ref. Co., Pittsburgh, Pa.	Waverly	Absp.	5,000
Melrose Oil & Gas Co., Sistersville	Gorrell farm, Middlebourne	Comp.	25
Melrose Oil & Gas Co., Sistersville	Stealey farm, Middlebourne	Comp.	25
Oil & Gas Co., The, Harrisville	Ritchie Co.	Comp.	250
Owens, Libbey-Owens, Gas Dept., Charleston	South Malden	Absp.	10,000
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	Macfarlan	Absp.	*1,500
Pittsburgh Oil & Gas Co., Pittsburgh, Pa.	R.D. No. 2, Sistersville	Comp.	750
Pure Oil Co., Box 106, Dawes	Kanawha Co.	C-A	5,900
Reno Oil Co., Sistersville	Ritchie Co.	Comp.	33
Reno Oil Co., Sistersville	Ritchie Co.	Comp.	50
Reno Oil Co., Sistersville	Ritchie Co.	Comp.	75
Reno Oil Co., Sistersville	Tyler Co.	Comp.	50
Reno Oil Co., Sistersville	Tyler Co.	Comp.	44
Tyler Oil Co., Sistersville	Tyler Co.	Comp.	50
Tyler Oil Co., Sistersville	Tyler Co.	Comp.	35
Tyler Oil Co., Sistersville	Tyler Co.	Comp.	25
Reserve Gas Co., Kennedy	Valley Chapel	Absp.	20,000
South Penn Oil Co., Pittsburgh, Pa.	Blue Creek	Comp.	1,400
South Penn Oil Co., Pittsburgh, Pa.	Bula	Comp.	200
South Penn Oil Co., Pittsburgh, Pa.	Carpenter	Comp.	1,400
South Penn Oil Co., Pittsburgh, Pa.	Fairview	Absp.	1,400
South Penn Oil Co., Pittsburgh, Pa.	Fink	Comp.	700
South Penn Oil Co., Pittsburgh, Pa.	Macfarlan	Comp.	400
South Penn Oil Co., Pittsburgh, Pa.	Mannington	Absp.	1,000
South Penn Oil Co., Pittsburgh, Pa.	Metz	Comp.	500
South Penn Oil Co., Pittsburgh, Pa.	Newton	Comp.	700
South Penn Oil Co., Pittsburgh, Pa.	Pinch	Comp.	400
South Penn Oil Co., Pittsburgh, Pa.	Pine Grove	Absp.	1,200
South Penn Oil Co., Pittsburgh, Pa.	Rock Creek	Comp.	800
South Penn Oil Co., Pittsburgh, Pa.	Shirley	Comp.	900
South Penn Oil Co., Pittsburgh, Pa.	Smithfield	Comp.	1,000
South Penn Oil Co., Pittsburgh, Pa.	Spencer	Comp.	900
South Penn Oil Co., Pittsburgh, Pa.	Stringtown	Comp.	800
South Penn Oil Co., Pittsburgh, Pa.	Tanner	Comp.	400
South Penn Oil Co., Pittsburgh, Pa.	Wolf Summit	Comp.	600
South Penn Oil Co., Pittsburgh, Pa.	Yawkey	Comp.	1,500
Union Gasoline & Oil Corp., Jane Lew	Lewis Co.	Absp.	3,000
Union Gasoline & Oil Corp., Moundsville	Marshall Co.	Absp.	3,000
Union Gasoline & Oil Corp., Porter Falls	Wetzel Co.	Absp.	7,000
Union Gasoline & Oil Corp., Sedalia	Doddridge Co.	Absp.	*3,000
Virginian Gasoline & Oil Co., Charleston	Kanawha Co.	Absp.	15,000
Virginian Gasoline & Oil Co., Charleston	Kanawha Co.	Char.	2,000
Virginian Gasoline & Oil Co., Clendenin	Kanawha Co.	Absp.	40,000
Virginian Gasoline & Oil Co., Hubball	Lincoln Co.	Char.	12,000
Virginian Gasoline & Oil Co., Louisa, Ky.	Wayne Co.	Char.	*3,500
Virginian Gasoline & Oil Co., Mammoth	Kanawha Co.	Absp.	2,500
Virginian Gasoline & Oil Co., Ona	Cabell County	Absp.	*18,000
Virginian Gasoline & Oil Co., Pad	Roane Co.	Absp.	*800
Virginian Gasoline & Oil Co., Sandyville	Jackson Co.	Char.	40,000
Virginian Gasoline & Oil Co., Spencer	Roane Co.	Char.	12,000
Virginian Gasoline & Oil Co., St. Albans	Kanawha Co.	Char.	3,500
Virginian Gasoline & Oil Co., Staffel	Kanawha Co.	Absp.	1,800
Virginian Gasoline & Oil Co., Three Mile	Kanawha Co.	Absp.	3,500

*Shut down.

WYOMING

Continental Oil Co., Columbine	Nitrona Co.	Comp.	4,000
Continental Oil Co., Lance Creek	Niobrara Co.	Absp.	10,000
Ohio Oil Co., Kirby	Hot Springs Co.	Comp.	*3,600
Ohio Oil Co., Rocky River	Carbon Co.	Absp.	5,000
Sinclair Wyoming Oil Co., Bairoil	NE¼ Sec. 10-26n-90w	Comp.	1,200
Sinclair Wyoming Oil Co., Bairoil	NE¼ SW¼ Sec. 7-26n-89w	Absp.	5,000
Sinclair Wyoming Oil Co., Columbine	NE¼ NE¼ Sec. 13-39w-79w	Absp.	5,000
Stanolind Oil & Gas Co., Midwest	Midwest	Comp.	85,000

*Shut down.

High Octane Specifications for Navy Aviation Gasoline

Motor fuels meeting the requirements of the aviation industry must be of the highest quality. Antiknock properties have become of increasing importance as airplane designers have increased horsepower of engines with reduced weights. Following are the U. S. Navy specifications for aviation gasoline:

B. Grades. B-1. High octane aviation gasoline shall be of two grades as follows: 87 octane; 100 octane.

C. Material and workmanship. C-1. Shall consist essentially of hydrocarbon compounds, to which tetraethyl lead may be added as specified herein.

C-2. Shall be free from water and suspended matter.

C-3. The odor of the fuel shall not be nauseating or irritating. No substances of dangerous toxicity under usual conditions of handling and use shall be present.

D. General requirements. D-1. Fuel supplied under this specification shall be "iso-octane fuel" consisting of a blend of 60 per cent plus or minus 10 per cent straightrun aviation gasoline of approximately 73-octane number (A.S.T.M. D-357-34T) and 40 per cent plus or minus 10 per cent commercial iso-octane (2,2,4-trimethyl pentane) except as hereinafter specified:

D-1 (a). Low boiling point hydrocarbons may be added to adjust the distillation characteristics.

D-1 (b). High octane fuels containing other hydrocarbon blending agents differing from those prescribed in paragraph D-1 will be accepted if they meet the requirements of this specification, provided that in such cases the government reserves the right to conduct full scale engine tests to determine the suitability of the fuel for service use, as a part of the type approval test determining acceptability. (Attention is invited to section H-1.)

E. Detail requirements. E-1. Definitions. E-1 (a). Finished fuel—The term "finished fuel" as used in this specification is defined as the fuel as delivered ready for use.

E-1 (b). Basic fuel—The term "basic fuel" as used in this specification is defined as the finished fuel before the addition of Ethyl fluid.

E-2. Detail requirements applicable to finished fuel of both the 87-octane and 100-octane grades.

E-2 (a). Freezing point—The freezing point as indicated by the initial formation of solid rather than by the cloud point shall not be higher than minus 60° C. (minus 76° F.).

E-2 (b). Corrosion—One hundred ml. of the finished fuel evaporated in a polished copper dish shall cause no gray or black corrosion.

E-2 (c). Gum—The finished fuel shall be subjected to an accelerated aging test at 100° C. (212° F.) with oxygen at approximately 100 pounds pressure for four hours. On evaporation of 100 ml. of oxidized sample, the amount of residue shall not exceed 10 milligrams. For further details of accelerated aging test and subsequent evaporation of oxidized sample, see section F-2 (c).

E-2 (d). Sulfur—Sulfur shall not be over 0.10 per cent.

E-2 (e). Distillation range—The limits shall be as follows:

When the thermometer reads 75° C. (167° F.) not less than 10 per cent shall be evaporated.

When the thermometer reads 100° C. (212° F.) not less than 50 per cent shall be evaporated.

When the thermometer reads 135° C. (275° F.) not less than 90 per cent shall be evaporated.

The sum of the individual temperatures in degrees Centigrade of the 10 and 50 per cent evaporated points shall not be less than 135° C. (minimum sum of temperatures in degrees Fahrenheit, 307).

The residue shall not exceed 2 per cent.

The per cent evaporated shall be found by adding the distillation loss to the amount collected in the receiver at each specification point.

For method of determination of distillation range, see section F-2 (d).

E-2 (f). Reid vapor pressure—The Reid vapor pressure at 37.8° C. (100° F.), shall not exceed 7 pounds per square inch.

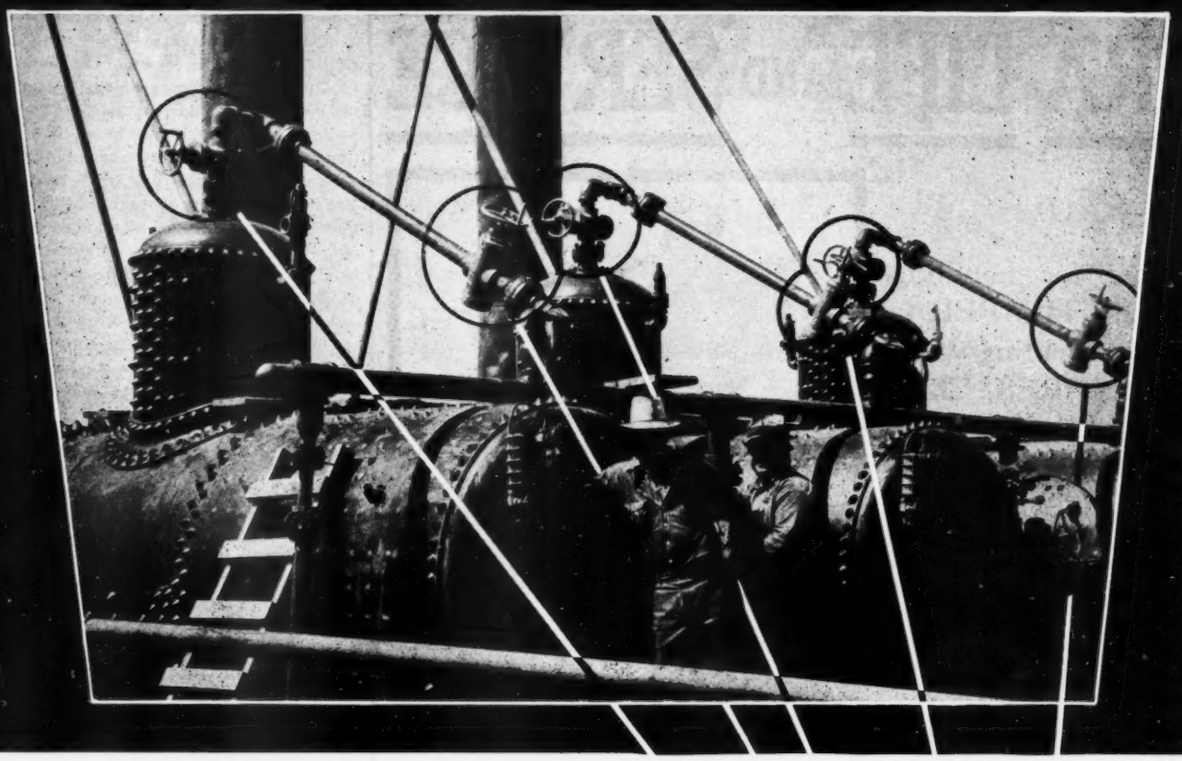
E-29 (g). Water tolerance—Eighty ml. of the finished fuel shall be shaken in a glass stoppered graduate with 20 ml. of distilled water at room temperature. On settling after shaking the volume of the aqueous layer shall not have increased nor decreased by more than 2 milliliters.

E-2 (h). The product of heat of combustion (high value) in B.t.u. per pound by specific gravity shall not be less than 13,700 except that if the contractor furnishes the procuring agency a sworn statement that the fuel furnished is composed completely of hydrocarbons similar to those obtained by the distillation of petroleum and/or coal tar, with or without Ethyl fluid, this requirement may be waived, as all such distillates of usual characteristics for aircraft engine fuel are well above the minimum requirement.

E-2 (i). Acid heat—The finished fuel shall be subjected to the acid heat test, herein described under Specifications F-2 (g), with an acid heat result not in excess of 11.1° C. (20° F.).

Edgar Tobin, San Antonio.

An aerial view of Avery Island Prospect in the New Iberia Parish, Coastal Louisiana



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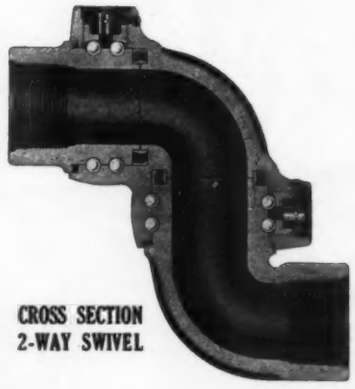
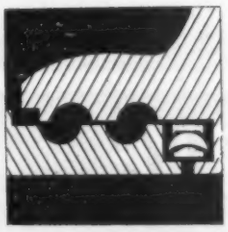
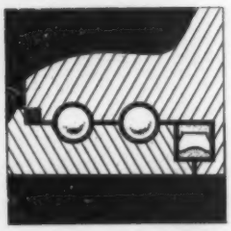
Whether used for handling fluids at high TEMPERATURES or for drilling wells at high PRESSURES, Chiksan joints give greater leak-proof service because the method of assembly keeps the packing tight, yet allows free and easy 360° swiveling.



CROSS SECTION
2-WAY SWIVEL





WHEN the two halves of the joint are brought together, pressure is applied to compress the special DUPRENE packing element and allow the accurately machined ball races to come into alignment. Then hardened steel balls are dropped one at a time through the grease plug opening until the ball races are completely filled, and the opening is then sealed and locked with a screw plug equipped with an Alemite fitting.

The ball assembly thus becomes a combination radial and thrust bearing—reducing rotational friction to a minimum while keeping the parts in perfect alignment, and maintaining the compression upon the packing unit throughout the life of the joint.

The packing assembly consists of a concave oil-resisting packing element made of Duprene rubber, and two brass retainer rings. The concave surface of the rubber element faces inwardly and greater pressure from the inside of the joint only spreads the rubber more tightly against the metal walls of the packing chamber, maintaining an absolutely leak-proof seal under even the highest pressures. The brass retainer rings reduce friction on the rubber element, giving easy rotation and long wear.

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(Chiksan Swing Joints are made with either flanged or threaded ends or bored for welding).

Dr. G. S. Hume Estimates Turner Valley Oil Reserves

TORONTO, Ontario.—Addressing the Canadian Club here, Dr. G. S. Hume of the Geological Survey of Canada estimated a potential capacity of 250,000,000 bbls. of crude for the west flank of Turner Valley. The estimate was based on a width of one-quarter to one-half mile and a porosity in the oil zone of 10 to 20 per cent and a thickness of 50 to 100 feet, giving an average oil content of 100,000 bbls. an acre. Engineers allowed a shrinkage of 50 per cent for the loss of gas when the oil is brought to the surface, thus arriving at a figure of 50,000 bbls. to the acre under atmospheric conditions. Assuming that drilling could be extended to the 7,000-foot level of the top of the limestone, an estimate is made of 5,000 acres of crude oil lands in Turner Valley, giving a potential capacity of 250,000,000 bbls. for the west flank. Doctor Hume intimated the 50 per cent shrinkage factor might be too high except for a limited area close to the oil-gas boundary.

"It is difficult to predict," Doctor Hume continued, "what part of this oil will be recoverable. The pressure in the gas wells at the top of the structure was originally more than 2,000 pounds per square inch whereas in June, 1936, the maximum was 1,420 pounds and the minimum was 385 pounds per square inch. Some engineers placed the recovery of oil at 25 per cent but this may be conservative."

Doctor Hume pointed out that the geological interpretation of the Turner Valley structure is of great importance in relation to the development of other fields in the foothills. Present indications that the low-angle fault cutting across the structure turns down steeply under Central Turner Valley is of tremendous importance to the foothills area since it indicates that the limestone might not be cut off on the west flank. The idea that the fault might turn from a relatively low angle to a steep dip at depth was derived from a study in 1933 of a fault traced for 20 miles in the area of the Hunter Valley well on Red Deer River close to the mountains.

"In applying this steepening of the low-angle faults under other structures, it now becomes apparent that areas in the foothills which have been tested by one or two wells and yielded nothing may still have good prospects of oil production. If, for instance, Jumping Pound is eventually proved to have Paleozoic limestone on its western flank just as Turner Valley had been proved to have a limestone there not cut off on its western edge, confidence will be reestablished in drilling a number of other foothill areas where at present drilling has not been attempted or is suspended."

Canadian Western Meeting

CALGARY, Alberta.—At the annual meeting of the Canadian Western Natural Gas, Light, Heat & Power Co., H. R. Milner, K.C., president and managing director, reported for 1936 gas sales aggregating $2,259,348.83 with a net income of $468,378.15 and earned surplus of $215,005.35. Taxes aggregated $271,858.76.

F. A. Smith was added to the board of directors, the directors reappointed being H. R. Milner and Julian Garrett, Edmonton; F. W. Seymour, New York; P. D. Mellon, H. S. Watts, S. E. Slipper, E. W. Bowness, Calgary; and A. G. Baalim, Lethbridge.

The president's annual report expressed grave concern over the rapid depletion of the Turner

John L. Davidson, president of C. C. Petroleums, Ltd., of Vancouver, British Columbia, visited Calgary and Southern Alberta recently in connection with projected development by his company.

FIELD OPERATIONS

Summarizing the Week's Developments

The Buckeye field in Gladwin County, Michigan, comprising two pools, may or may not be proved as one pool, but a new well in section 23-18-1w midway between the two pools is good for 50 bbls. per hour after an acid treatment. There appears to be some debate yet as to whether it is a separate discovery or a connecting link. The Buckeye pool which is good for more than 30,000 bbls. a day is held down to less than 18,000 bbls. by limited demand for the oil by the two pipe line companies. Meanwhile it is adding new wells weekly and some of them are in the 3,000-bbl. class in initial production.

ILLINOIS

A dry hole in the Benoist sand in Marion County, Illinois, and failure to find pay in the McCloskey sand in a well offsetting a McCloskey sand producer in Wayne County, were outstanding features of the past week in the Central Illinois Basin development. The last named well will be drilled to explore the deep horizons. Meanwhile every oil company in the state is busy leasing and the play extends from southeastern Iowa into southwestern Indiana.

OKLAHOMA

The Langston pool, Logan County, Oklahoma, was extended one-half mile northeast by a 40,000,000-foot gas well. The Lucien field, Logan County, was extended one location south. Several new tests were started in the Muse district, between Fitts and Jesse fields in Pontotoc County, currently the busiest area in Oklahoma.

KANSAS

Oil pools were opened in Barton County, northwest of the Bloomer field, and in Rice County, northwest of the Gouldner pool, in Kansas. A new producer opened a large area between the Trapp and Ochs pools, Russell County, to development. The largest producer in the Trapp area was completed on the south side of the pool.

LA-ARK-TEX AREA

The best well yet found in the southwestern extension of the Rodessa field is Hunter Co. No. 1 Fonda in Marion County, Texas, which has produced as much as 37 bbls. hourly. Ten wells were completed in the new Lisbon field in Claiborne Parish, Louisiana, and they averaged close to 600 bbls. per day per well. In Miller County, Arkansas, a test drilled in Section 18-15-26, was abandoned as dry at 4,500 feet. The most interesting news from Louisiana came from the Coastal area where what had been hailed as the world's deepest oil well had to be killed because it showed 35 per cent salt water in its production. It is in Terrebonne Parish and was drilled to 12,165 feet. It will be recompleted.

TEXAS

Two wildcats in West Texas, one in Howard and the other in western Ward County have uncovered new oil production and a test in Upton County either extended the old McCamey field or opened a separate pool. In the Cayuga area in Henderson County, Eastern Texas, an oil saturated core at 4,100-05 feet was recovered in an extension test.

CALIFORNIA

Overproduction in the new Wilmington field in California has resulted in some under-the-market sales of crude from that field. Only two pipe lines enter the field which is producing about 36,000 bbls. per day and other lines are not expected to give the field any service until a curtailment program, with proration, is effected.

Completions in All Fields

(Week Ending May 15, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
N. Y., Pa., W. Va.	60	14	5	79	1,347	1,182
Ohio	12	17	3	32	358	114
Indiana	0	0	0	0	40	59
Kentucky	17	14	7	38	100	79
Illinois	0	0	1	1	24	17
Michigan	10	5	6	21	309	269
Kansas	38	1	9	48	815	551
Oklahoma	40	2	11	53	1,028	851
Texas:						
North Central Texas	32	1	23	56	1,003	998
West Texas	62	0	4	66	935	477
Texas Panhandle	9	4	0	13	242	256
East Texas	47	0	2	49	782	978
East Central Texas	12	0	5	17	235	96
East Texas Border	8	0	1	9	161	18
Gulf Coast Texas	29	2	3	34	507	399
Southwest Texas	46	2	18	66	1,231	1,001
Total Texas	245	9	56	310	5,096	4,223
North Louisiana	15	0	0	15	232	235
Gulf Coast Louisiana	10	0	2	12	175	141
Total Louisiana	25	0	2	27	407	476
Arkansas	1	0	4	5	49	36
Montana	3	1	2	6	47	55
Wyoming	1	1	1	3	35	28
Colorado	0	0	0	0	6	12
New Mexico	23	0	1	24	278	179
Utah	0	0	0	0	0	4
California	25	1	8	34	531	404
Total United States	500	65	116	681	10,470	8,439
Total previous week	444	32	116	592		
Difference	56	33	0	89		

Outstanding Fields—Highlights

(Week Ending May 15, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Anahuac	3	3	4	1,992	176	13,987
Hastings	5	15	6	3,555	173	13,458
Flour Bluff	2	7	3	555	45	4,030
Saxet	6	31	9	1,445	430	17,680
Lopez	8	5	2	175	330	8,290
East Texas	35	116	47	1,947	22,670	463,547
Talco	11	37	6	1,580	310	27,150
Ector County	20	85	13	10,553	392	19,700
Winkler County	28	63	18	13,699	1,218	42,960
OKLAHOMA						
Oklahoma City	2	15	0	.....	1,114	169,700
Fitts	9	55	9	2,465	726	96,525
Olympic	2	17	4	370	344	15,200
KANSAS						
Ellis County	7	36	6	13,003	98	6,245
Reno County	5	29	2	2,822	414	20,195
Russell County	9	57	7	4,307	678	31,335
Rice County	10	59	8	8,730	828	48,570
NEW MEXICO						
Lea County	25	105	22	6,875	2,139	113,240
LOUISIANA-TEXAS						
Rodessa, La.	1	14	1	292	373	49,335
Rodessa, Tex.	8	29	8	2,465	285	41,930
Lisbon, La.	15	11	10	5,962	19	4,170
MICHIGAN						
Buckeye	28	73	8	5,400	69	17,162

Eastern Field Report

By STAFF CORRESPONDENT

WEST VIRGINIA COMPLETES LARGEST WELL IN ORISKANY

PITTSBURGH, Pa., May 17.—The largest gas well in West Virginia was completed in the Oriskany gas field in West Virginia during the week. In Poca district, Hays Oil & Gas Co. completed its test on the E. C. Humphrey's farm at a depth of 4,804 feet, the Oriskany sand, and it gauges 18,000,000 feet a day without shot. It is about a mile west of the Ahaz Spencer farm on which the previous record gas well is located. The shut-in pressure in the Humphrey test at the end of one hour was 1,600 pounds.

The Milliken anticline on which this well is located continues the active center of Oriskany drilling with 28 wells drilling in Elk and Poca districts. The gas pool is now about 10 miles north and south by 7 miles east and west with tests drilling outside of proven areas.

In Pennsylvania, an outside deep test is reaching an interesting depth. In Fairfield Township, Westmoreland County, Potter Development Co. is drilling at 7,495 feet on the Indiana Savings Bank lease (Kern Dodge No. 1) and is expected to reach the Corniferous lime shortly. The Brown shale started at 7,100 feet with gas shows at 7,305 feet and 7,312 feet. Top of the dark shale (Marcellus) was reached at 7,474 feet, cemented at 7,495 feet, and is being drilled through.

In view of the gas well on the Summit Hotel property in South Union Township, Fayette County, on Chestnut Ridge, this test is viewed with interest. It is northwest of the Summit gas well and 1.4 miles south 47 degrees west of the intersection of Cambria, Somerset and Westmoreland counties on top of the Laurel Ridge dome. The elevation is 2,720 feet and it starts somewhere in the Pocono series. As there is nothing with which to correlate it, judging from the thickening of the shale interval, the Oriskany sand is expected around 7,900 feet.

Twenty-six operations were completed in the lower Eastern fields during the week of which four were dry, 13 gas wells, and nine producers with an initial production of 237 bbls. There was one very good producer completed in Southwest Pennsylvania.

In Southeast Ohio only two wells were reported. In Licking County, Alexandria Banking Co. and others completed No. 6 Jane G. Hirst, section 17, Franklin Township, in the Berea at 740 feet. It produced 4 bbls. the first day after shot.

In Noble County, George Robinson and others drilled a second test on the Effie Bruce farm in the southwest quarter of section 25, Marion Township, through the Macksburg 500-foot sand to 764 feet. There was no showing of oil or gas.

In Columbiana County, Natural Gas Co. of West Virginia has started drilling the deep test on the D. Deselem farm in section 26, Wayne Township, the most western test on the structure by this company.

SOUTHWEST PENNSYLVANIA

The best producer in Southwest Pennsylvania in recent months was completed by Carnegie Natural Gas Co. on the Alberta Iams farm in South Franklin Township, Washington County. It was No. 2 and it produced 100 bbls. the first eight hours. The Pittsburgh Coal was at 683-689 feet; Fourth sand, 2,856-85 feet; Fifth sand, 2,907 feet with oil at 2,911-14 feet. It is on the Point Lookout Fifth sand streak.

In Greene County Greensboro Gas Co. completed a test on the Barclay farm in Monongahela Township at 1,016 feet. The Little Dunkard sand was at 978 feet with 960,000 feet of gas at 1,009-16 feet which blew down to 465,000 feet.

In Whiteley Township, Greene County, Carnegie Natural Gas Co. deepened the test on the Bowers farm to 3,202 feet. Fifth sand was at 2,950-65 feet; Bayard, 3,085-3,101 feet with gas at 3,092-94 feet. The final gauge was 29,112 feet. In Cumberland Township, Equitable Gas Co. deepened the test on the Dugan farm to 3,203 feet through the Bayard and it was dry.

In South Strabane Township, Washington County, Emerald Petroleum Co. is building a rig on the Mose Little farm. Victor D. Behm and others are rigging up on the Lucy Smith farm. In North Strabane Township Keystone Gas Co. has a rig on the J. H. Hixen farm.

In Amwell Township, Washington County, Carnegie Natural Gas Co. has made location for a second test on the C. W. Farabee farm offsetting the producer on the Dunn farm. Manufacturers Light & Heat Co. has started spudding No. 6 A. O. Vankirk and is building a rig to deepen No. 1. South Penn Oil Co. is drilling at 1,365 feet on the J. Q. Zimmerman farm.

In South Franklin Township, Washington County, Carnegie Natural Gas Co. is drilling at 2,899 feet in No. 2 C. T. Dodd and should reach the Fifth sand this week. Dunn Mar Oil & Gas Co. recovered the bit lost in the Fifth sand at 3,005 feet in No. 2 J. T. Baldwin.

In Peters Township, Washington County, William Smith and others have reached 150 feet on the W. Donaldson farm and R. M. Duden and others have the rig standing for No. 2 Johnson.

In Greene County, South Penn Oil Co. has made a location for No. 11 Samuel Harvey in Center Township. Charles Mong and others have reached 2,450 feet on the J. L. Metz lease.

In Monongahela Township, Greene County, Greensboro Gas Co. has made a location on the Cawin Ulery farm. In Wayne Township Equitable Gas Co. is hauling in a rig to deepen No. 1 B. F. Thralls. H. D. Freeland & Co. have reached 1,670 feet in No. 3 D. L. Freeland.

In Richhill Township Smith McCracken has made a location on the A. Hughes farm. Natural Gas Co. of West Virginia is drilling at 1,970 feet on the J. S. Johnson farm and fishing tools at 2,286 feet on the O. M. Grinnage farm.

In Aleppo Township, J. G. Cochran and others are drilling at 300 feet in No. 3 John Strope. In Springhill Township Dunn Mar Oil & Gas Co. has reached 3,010 feet in the No. 2 Kuhn heirs. Union Gasoline & Oil Corp. is down 3,350 feet in No. 7 Lloyd Strope.

Deep Tests

The deep test of A. J. Wise, Jr., and others on the Beaver Falls Airport Corp. lease in South Beaver Township, Beaver County, is drilling at 4,602 feet and top of the Corniferous lime has not been reached. Comparing this with the Oriskany gas well on the William Graham (Calvin) farm in this township is appears so far 27 feet deeper than the top of the lime in the Graham gas well. Elevation of the Wise test was 1,151 feet which places it now 3,451 feet subsea whereas the top of the lime in the Graham gas well was 4,331 feet with a surface elevation of 907 feet or 3,424 feet subsea. In this township John T. Galey and others are still fishing for tools lost in the gas blow on the Minnie Weigle heirs (Duff) farm.

In Washington County, Norwood Johnson and others have recovered all of the cable lost at 6,170 feet in the deep test on the James McBurney farm in Mount Pleasant Township. The tools are in the hole and the bridges above the tools caused by continuing gas blowouts are being cleared.

In Butler County, a mile south of Prospect, the test of American Natural Gas Co. and T. W. Phillips Gas & Oil Co. was shot in the Oriskany sand and it is believed the volume increased. After the shot, the tools were lost in attempting to clean out and are being fished for.

WEST VIRGINIA

Several small producers were completed in West Virginia. In Roane County Reedy Oil & Gas Co. completed a test on the Maggie Miller farm in Curtis district in the Salt sand at 1,880 feet, good for 15 bbls. In Harper district L. C. Young and others completed a gas well in the Salt sand on the J. N. Hawkins farm, making a barrel of oil from 1,682-88 feet.

In Marion County, Hope Natural Gas Co. deepened No. 1505 L. D. Fetty heirs in Mannington district to 3,432 feet. No Fifth sand was found but it is being tested for oil in the Maxton and Injun sands.

In Mason County New Haven Gas Co. completed a well on the C. M. Ohlinger farm in Graham district earlier in the year in the Salt sand at 1,840 feet. It is making a barrel a day and has just been put to producing.

In Pleasants County, Lawrence McClure deepened the test on the Samuel G. Hammett farm in Jefferson district to 1,725 feet and it was dry in the Injun sand and has been filled back to produce 4 bbls. from the Maxton sand at 1,100 feet.

In Ritchie County Loris Swadley completed a test on the J. H. McGinnis farm in Union district in the Maxton sand at 2,147 feet, good for a half barrel and while drilled in the Injun sand the gas in that formation showed no gauge.

Oriskany Gas Field

Two additional locations were made for deep tests in Kanawha County. In Poca district, Mullins Gas Co. and Brawley Reid Gas Co. made a location on the L. E. Campbell and W. H. O'Dell farm about 1 mile southeast of the Ahaz Spencer gas well No. 1. In Elk district, United Fuel Gas Co. made a location on the C. W. Shafer farm an offset to the south of No. 1 H. C. Smith.

In Poca district, West Virginia Gas Corp. is completing the test on the Victoria L. Burdette farm in the Oriskany sand and it will be a good gas well. At 4,870 feet and drilling, it is showing for 7,100,000 feet. Columbian Carbon Co. has reached 5,055 feet on the H. R. Reed and it is showing gas but no final test or gauge. This company has reached 4,160 feet on the Mary Boggess farm. United Fuel Gas Co. is drilling at 2,045 feet on the A. J. Bruen and others No. 4712. Spartan Gas Co. is down 1,350 feet in the No. 2 Availee Baldwin. South Penn Oil Co. is drilling at 1,854 feet on the J. H. Newhouse farm. Godfrey L. Cabot, Inc., is down 1,786 feet on the J. E. and M. D. Good farm, building a rig on the J. C. Fisher and others lease, and drilling at 465 feet on the Holmes Morton and others lease.

In Union district, on the outside western edge of the present extensive drilling, Godfrey L. Cabot, Inc., is down 238 feet on the Sarah Ann Null farm and building rig on the C. W. Richardson farm. Glenn Oil & Gas Co. is drilling at 1,960 feet on the Virginia Joint Stock Land Bank lease.

In Malden district, South Penn Oil Co. is drilling at 354 feet in No. 4 Kate C. Scott. Columbian Carbon Co. has reached 1,128 feet in No. 16 W. D. Lewis. Godfrey L. Cabot, Inc., is down 1,425 feet in No. 5 Nellie B. Tompkins and 55 feet in No. 6. United Fuel Gas Co. has started drilling No. 4741 on the Georges Creek Land & Mining Co.

Gas Wells

In Boone County, United Fuel Gas Co. completed No. 4694 Mohler Lumber Co. lease in Scott district as a gas well at 4,211 feet. Big lime was at 1,832-2,032 feet; Big Injun, 2,032-85 feet; Berea, 2,504-21 feet; gas, 2,506-10 feet; Brown shale 2,820-4,184 feet with gas at 2,825-4,025 feet. Total gauge was 320,000 feet.

In Washington district, Boone County, Pond Fork Oil & Gas Co. completed No. 27 Cole and Crane at 2,424 feet. Big lime was at 1,674-1,904 feet; Big Injun, 1,904-37 feet; Berea, 2,382-2,410 feet with 68,000 feet of gas at 2,390 feet.

In Cabell County, Kentucky, West Virginia Gas Co. completed a test on the James McCallister farm in Mc-

(Continued on Page 149)

Texas and Louisiana Gulf

By
F. L. SINGLETON

HUMBLE'S DEEP TEST KILLED AND WILL BE RECOMPLETED

HOUSTON, Tex., May 18.—Humble Oil & Refining Co. No. 1 H. J. Ellender, on the north flank of the old Houma gas field, Terrebonne Parish, Coastal Louisiana, which for short period had the appearance of becoming the deepest commercial producer in the world was killed Friday afternoon after it began to show approximately 35 per cent salt water and is scheduled to be recompleted. Production was turned into the tanks at 3 a.m. May 13 and on a two-hour gauge it flowed at the rate of 75 bbls. of fluid an hour, of which 47.57 per cent was net oil and the rest basic sediment and salt water. It was flowing through a quarter-inch choke making an estimated 1,500,000 feet of gas with the casing pressure 4,600 pounds and tubing pressure 3,100 pounds.

Fourth Test Below 12,000 Feet

No. 1 Ellender is the fourth test drilled below 12,000 feet in Coastal Louisiana. Bottom of the hole is 12,165 feet, with a production string of 7-inch casing cemented at 12,101 feet. It was tested first through perforated casing at 12,013-18 feet, and showed salt water with 1,250 pounds of pressure and then was plugged back to 11,630 feet, where it was completed through perforated casing at 11,620-30 feet. It is the opinion of the operators that the water is coming from sand just below the perforations and this will be cemented off and the well will be recompleted through perforations at a higher level.

The well is about 16 miles south of Houma in section 23-19s-19e in the eastern part of the parish. A few shallow gas wells were completed on the structure several years ago from the Pliocene sand at 2,250 to 2,900 feet. Production from these wells was short-lived. With the exception of one 40-acre tract southeast of No. 1 Ellender, practically all acreage is controlled by Humble Oil & Refining Co.

The fourth well drilled below 12,000 feet is Texas Co. No. 1 Bayou Sale, section 40-17s-9e, St. Mary, which is drilling below 12,175 feet and is scheduled to be drilled to 13,000 or 15,000 feet before attempts will be made to test several sands that are reported to have been encountered at higher levels. A Schlumberger survey was made at 12,135 feet, but the results are not known.

Fohs Wildcat Watched

East of Houma in western Lafourche Parish, much interest is centered on the wildcat test of Fohs Oil Co. No. 1 State Lake Prospect in section 65-17s-19e. After a Schlumberger survey was made to a total depth of 8,390 feet a string of 9⅝-inch casing was cemented at 8,388 feet. The well is scheduled to be a deep test and is reported to be checking favorably.

In the Big Lake field, Cameron Parish, Union Sulphur Co. cemented 7-inch casing on bottom at 8,362 feet after sand showing oil and gas was reported to have been cored from 8,284-8,326 feet. The casing was cemented as a protection string and the hole will be drilled deeper. Unless a deeper sand is encountered the hole will be plugged back and a test made through perforations. This is the first test drilled by Union Sulphur Co. since taking over the holdings from Magnolia Petroleum Co. which drilled three wells with only the discovery well producing. On the Mallard Bay Prospect, Pure Oil Co. is scheduled to start drilling its second test, No. 2 State, about 3,600 feet north of No. 1 State recently abandoned below 10,000 feet. Location is in section 14-13s-3w.

Another Jennings Producer

Superior Oil Co. added another producer to the west flank of the old Jennings field by the completion of No. 2 Jennings-Heywood and others in section 41-9s-2w. On a 24-hour gauge through 15/64-inch choke it flowed 530 bbls. of 38-gravity oil a day with tubing pressure 1,310 pounds and casing pressure 1,250 pounds. Production is from a screen setting made in 200 feet of sand bottomed at 6,496 feet. Derrick is up for No. 5 Leckelt in section 42-9s-2w. W. T. Buton No. 1 J. J. Roboria in section 11 cored oil sand at 6,512-55 feet and the hole is being reamed to run casing. Bottom of the hole is 6,630 feet.

On the west flank of the Vinton dome, Calcasieu Parish, Woodley Petroleum Co. and others No. 1 Gray is bottomed at 3,734 feet and is plugging back after a drill stem test 3,500-15 feet showed dry gas. Another deep test is scheduled to be drilled on the flank of this old field by Superior Oil Co. following the purchase of approximately 300 acres from Matilda Gray and William K. Gray for $75,000.

The third 10,000-foot producer for the Lafitte field, Jefferson Parish, was completed by Texas Co., whose No. 6 Lafitte field extends production 1,839 feet. Bottomed at 10,386 feet with 7⅝-inch casing cemented at 10,204 feet, perforations were made from 9,998-10,018 feet with 233 holes and the well flowed 1,285 bbls. of pipe-line oil a day through a three-eighths-inch choke with tubing pressure 950 pounds.

St. Martinsville Extended

The St. Martinsville field, St. Martin Parish, was extended 1,000 feet northeast by Tide Water Oil Co. No. 3 Smedes, which flowed 577 bbls. of 30-gravity oil in 23½ hours through a quarter-inch choke with tubing pressure 740 pounds and casing pressure 740 pounds. The sand, topped at 5,547 feet, was cored to a total depth of 5,563 feet. Seven-inch casing was cemented at 5,551 feet. Same company's No. 1-C Smedes in section 57 is drilling in shale below 6,700 feet and apparently has missed the 5,500-foot sand, the discovery horizon.

Two producers are scheduled to be completed in the Jeanerette field by the Herton Oil Co. No. 8 Banta in section 40, cored oil sand at 6,650-55 feet and 7-inch casing has been cemented at 6,637 feet. No. 6 Carter in section 38 cored oil sand at 7,031-41 feet and 7-inch casing was cemented at 7,006 feet.

A new sand for the Bayou Cocotriz field, Terrebonne Parish, was indicated by Shell Petroleum Corp. No. 1 Pelican in section 36. Sand showing oil was cored at intervals from 8,646-61 feet and a drill stem test from 8,645-61 feet showed 500 pounds of pressure and one-half barrel of oil and 2½ bbls. of salt water. It is coring ahead in shale showing oil below 8,678 feet and a second drill stem test will be made.

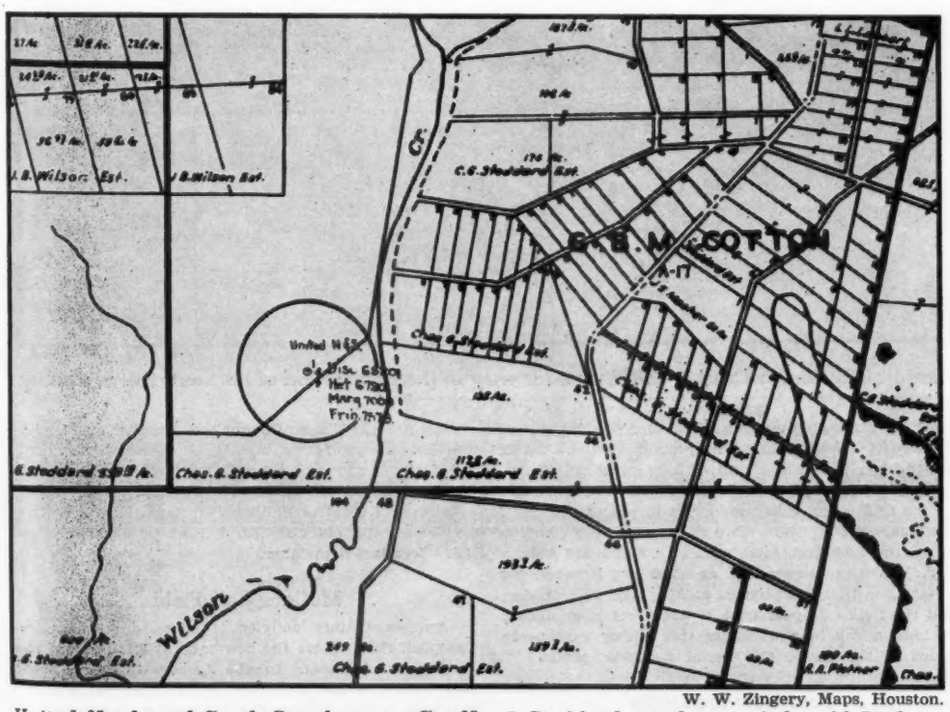
At the Lake Barre field, Terrebonne Parish, Texas Co. No. 37 Lake Barre was plugged back from a depth of 10,959 feet and completed for an initial production of 546 bbls. a day through a quarter-inch choke. Seven and five-eighths inch casing was cemented at 3,741 feet.

Two more wildcat locations were made the past week. On the Bay St. Elaine Prospect, Terrebonne Parish, E. J. LeBlanc is moving in a rig for No. 1 Z. Wurzlow in section 17-22s-18e, while on the Vermilion Bay Prospect, Texas Co. is scheduled to start drilling No. 2-B State in section 54-12s-7e.

Wildcat Stirs Attention

Along the Texas coast, attention was centered on the wildcat test of United North and South Development Co. No. 1 Stoddard 1½ miles southwest of the Buckeye field, Matagorda County. Following the running of a Schlumberger survey to a total depth of 9,875 feet, 7-inch casing was cemented on bottom and a test is to be made through perforations at 9,770-76 feet. Should it fail to produce, perforations will be made below 9,800 feet where another possible sand was shown on the survey. In the same county and lo-

(Continued on Page 165)



W. W. Zingery, Maps, Houston.

United North and South Development Co. No. 1 Stoddard, southwest of the old Buckeye field, Matagorda County, where a production test is scheduled to be made through perforation at 9,770-76 feet

Southwest Texas District

By
GEORGE WEBER

POSSIBLE NEW PRODUCTION NOTED IN THREE DISTRICTS

CORPUS CHRISTI, Tex., May 17.—New developments in widely separated sections of Southwest Texas attracted attention during the past week. The Balcones fault line zone, Laredo district and Lower Coastal area all saw possibilities of new production. Activity in the Laredo district is falling off rapidly, despite the increased drilling in the new Sweden and North Sweden areas of Duval County. Lower Coastal drilling continues except for temporary shutdowns in some sections due to heavy rains. The active play in Caldwell and Guadalupe counties shared attention with Zavalla County during the week, as fault line operators watched developments of a wildcat in the latter area.

Production Show Reported

The Zavalla County test, Wilcox Oil & Gas Co. No. 1 Gillman, is reported to have a show of production. The test, which is being drilled with cable tools, struck a soft formation at 3,940 feet. The tools stuck in the hole and bridged, and operators were attempting to clean the hole at latest reports. The wildcat is in section 11, about 28 miles due west of the Pearsall field and 6 miles northeast of Batesville. The possibility of a strike may bring additional operators to the area, which has long been a prospective exploration section.

Elsewhere in the Balcones fault zone operators continued the active play in the Luling-Branyon section of Caldwell County. Seven new producers were completed during the past week, and about 15 rigs are drilling in the field. Surrounding the area in Caldwell and Guadalupe counties additional rigs are drilling in wildcat locations.

In the Laredo district, Webb and Duval counties are scenes of varied activity. The Labbe field of northern Duval County was extended by completion of Humble Oil & Refining Co. No. 1 Roos. The north outpost test, in section 119, was completed on the pump for an initial production of 50 bbls. a day from total depth of 2,871 feet. The same operators have made a second location on the Roos tract, and Magnolia Petroleum Co., major lease holder in the field, has staked location for No. 4 Labbe in section 1.

The Sweden field, which has disappointed since its discovery, had in prospect two new producing sands this week. Hiawatha Oil Co. No. 2 Southland Life perforated casing at 5,100-06 feet and blew out. The test was immediately shut in, and is being completed as a gasser, making an estimated 40,000,000 feet a day. No. 2 Herberger cored a sand at 5,072-91 feet which tested 400 feet of oil at 50 pounds. This sand is approximately 50 feet higher than that in the No. 2 Southland Life. Operators drilled No. 2 Herberger to a sand at 5,894-99 feet where it tested salt water.

Meanwhile operations are well under way in the newly opened North Sweden field in the vicinity of Benavides. Seven rigs are drilling. Three of the tests have the field sand and are due for important tests shortly. The Palangana field, which was opened last year by Frank Gravis, is again active, with two rigs running. All three fields are in the same general vicinity, in southeastern Duval County. Seven miles south of Sweden, George Viterio and others No. 1 Cadena is drilling below 4,100 feet.

Webb County Prospect

Webb County shows prospects of another new field, as the Eugene Garner No. 2 Saldivar, a wildcat located south of Aguilares cored saturated sand at 997-1,000 feet. The test has set casing and was to drill plugs for a completion attempt. Located in Block 12 of section 657, the test, offsetting No. 1 Saldivar on the northwest, is in the same sand which showed oil in the first wildcat. No. 1 failed to get a test of oil and was abandoned at a total depth of 5,191 feet.

In the same county the Killam field was extended again by completion of Killam's No. 1 Garcia in Survey 1099. The new producer made 125 bbls. a day at total depth of 2,008 feet.

The outstanding development in the Lower Coastal area of Southwest Texas was the possibility of opening another producing sand in the Agua Dulce field of western Nueces County. The United Production Co. No. 1 Harvey, deepest test drilled to date in Nueces County, has plugged back from total depth of 9,003 feet. Casing was set at 7,457 feet and perforated at 7,375-84 feet. The test started cleaning oil, mud and washwater, and later started making salt water. A late report stated the test was making an estimated 112 bbls. of fluid a day, consisting of approximately 25-30 per cent oil and the remainder salt water. Pressures on the casing and tubing were 3,260 and 2,700 pounds respectively, while the test cleaned on a one-eighth inch choke. Operators will kill the well and rework for attempted opening of another producing sand in the field. According to the pressures on the casing and tubing, the well is also making considerable gas.

As usual, completions in the Saxet field represented the addition of new production in practically all of the field's many sands. Two new wells were completed in the 6,300-foot sand, making 60 and 246 bbls. a day. The next deeper sand at 6,700 feet is producing in another new completion, making 112 bbls. a day, and the field's deepest sand at 6,900 feet is producing 41 bbls. a day in a workover test. Other wells were added in the 5,800-, 4,800-, and 4,400-foot sands.

Four New Producers

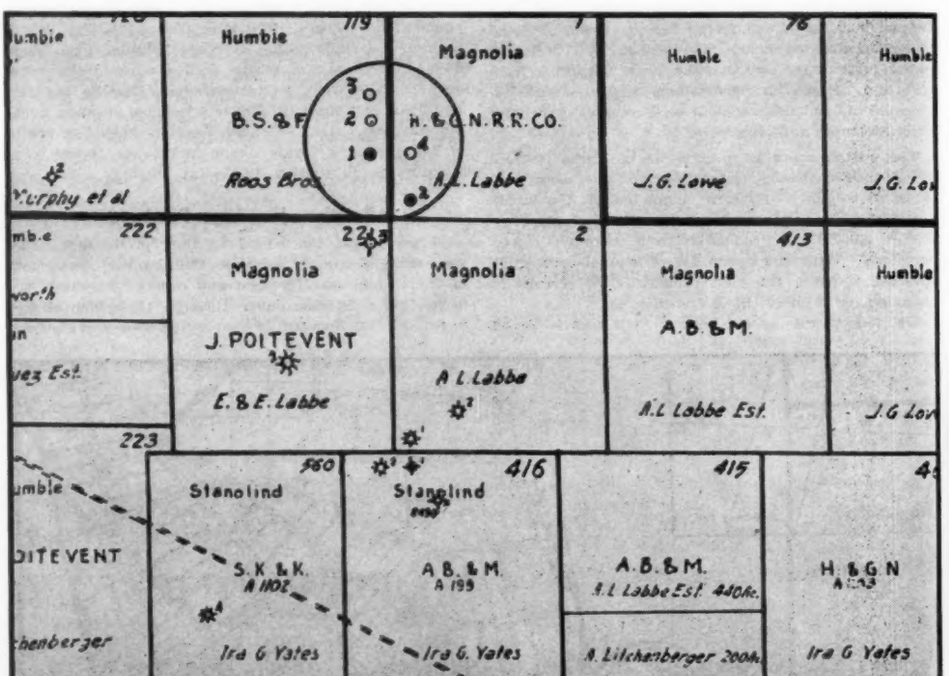
Saxet Heights, on the outskirts of Corpus Christi, gained four new producers recently, and some drilling is going on. The field, which was the busiest spot in Southwest Texas a year ago, has been relatively inactive during the past few months.

Flour Bluff, one of the most active fields in the sector, gained three new producers during the past week, as the Humble Oil & Refining Co., Barnsdall, and Flour Bluff Corp. brought in tests on the peninsula. Drilling is approaching Laguna Madre, and submerged drilling is expected to follow soon.

The Chapman Ranch field, newly discovered area southwest of Corpus Christi, suffered another setback as Seaboard Oil Corp. No. 4 Chapman was abandoned at total depth of 6,600 feet. The test is the second one abandoned in the field, which has two different sands. Seaboard is beginning No. 5 Chapman.

South Clara Driscoll

The South Clara Driscoll field discovery well, brought in over a week ago, is making 85 bbls. a day on a quarter-inch choke with 480 pounds tubing pressure and 975 pounds casing pressure on a late gauge.



Porter Regenold, Corpus Christi.

Large circle indicates new activity under way in the Labbe field of northern Duval County

Exploration in Nueces County took another spurt with the beginning of two additional wildcats. Seaboard Oil Corp. is rigging up on No. 1 Luby, 9 miles west of its Chapman Ranch field. Two and one-half miles southeast of Calallen Phillips Petroleum has rigged up to deepen the old Cox No. 1 Harney, abandoned at 4,279 feet last September.

McCampbell Field

Aransas County activity is centered in the McCampbell field, where the new sand at 7,110 feet is receiving development. In the Lamar district, Barnsdall Oil Co. is down below 7,750 feet on No. 2 Kate Edwards, which is due for interesting developments at about 7,990 feet. No. 2 offsets No. 1 which blew out at that depth and made gas and some oil before going dead flowing salt water.

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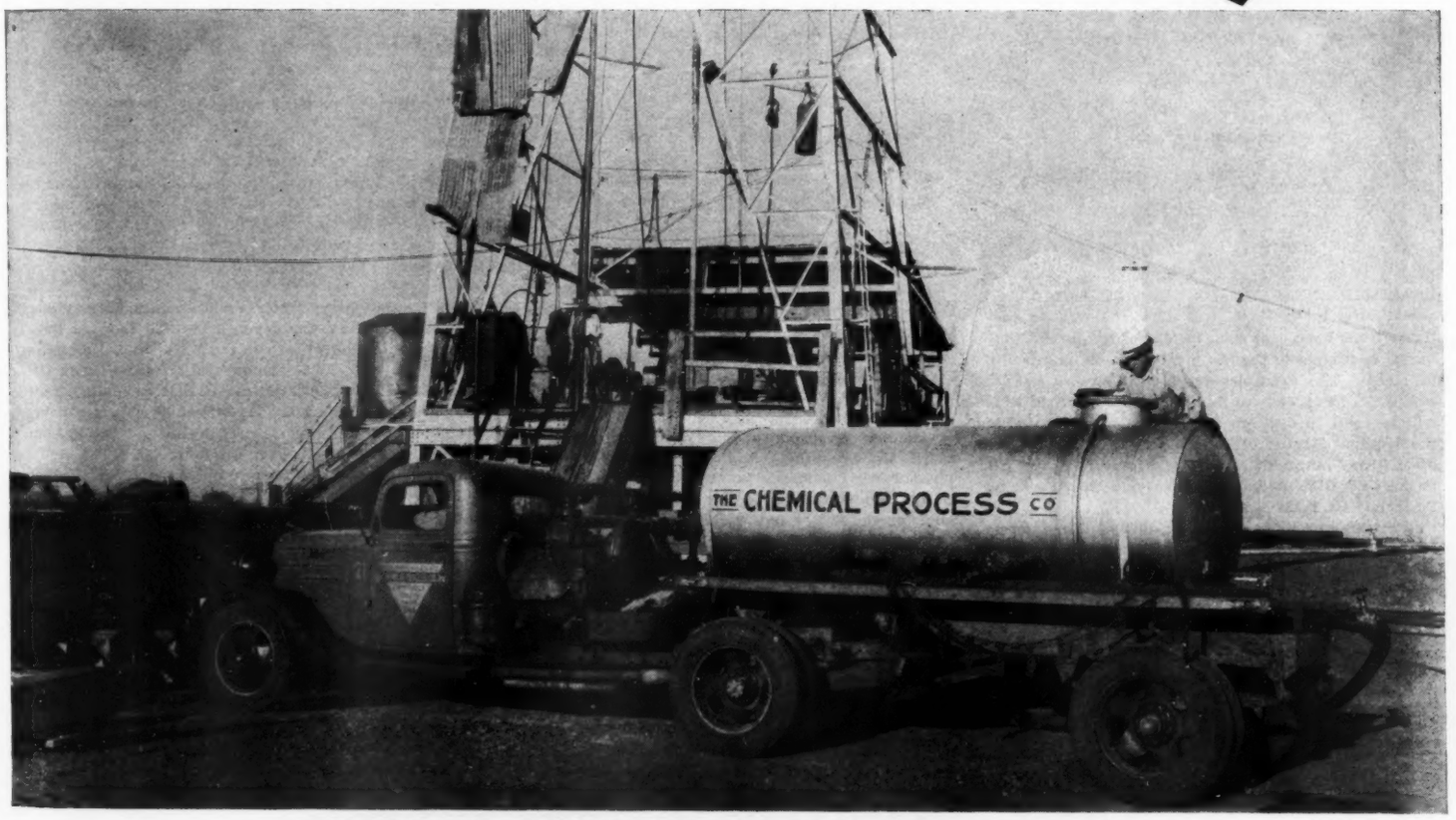

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East and East Central Texas

By
L. E. BREDBERG

HUNT COUNTY TRINITY TEST WILL DEEPEN TO GLEN ROSE

DALLAS, Tex., May 17.—Stanolind Oil & Gas Co. No. 1 J. P. Hawks, Trinity series test in the R. Ragsdale Survey, west of Campbell in Hunt County, topped the Paluxy at 4,384 feet and at last report was coring 65 feet in it, showing no oil, gas or water. Elevation is 566 feet. It will be carried deeper in quest of production from the Glen Rose, as the faulted structure is considered one of the most likely looking in East Texas. The block is in the northeastern corner of Hunt County, along the Mexia-Talco fault line, the Talco discovery resulting in the assembling of the Campbell block, which was leased by Fred Guthrie and M. J. Delaney of Dallas and checked with geophysical instruments by Stanolind Oil & Gas Co.

Another likely looking block drilled on the same fault, to the south, and near Quinlan, same county, recently proved dry when tested by Superior Oil Co. Penn Oil Corp. completed another Trinity test in the county this week when it gave up No. 1 R. B. Parish, in the N. Danley Survey, 7 miles northeast of Lone Oak, at a total depth of 6,502 feet. Elevation is 597 feet. One other Trinity test in the county is shut down after spudding to 40 feet, 2 miles southwest of Wolfe City.

Opelika Area

The Trinity strike of Tide Water Associated Oil Co., Seaboard Oil Corp. and Humble Oil & Refining Co. on the McElreath & Suggett lands near Opelika in northeastern Henderson County, was producing around 3½ bbls. of oil per hour this week after cutting off the drill stem about 30 feet off bottom, which makes the break at 6,130 feet. It was hoped the part cut off would drop in the hole and allow the well to flow through the open drill stem instead of the three seven-tenths inch holes in the bit, but the cut-off joint failed to budge. The operators tried shooting off the bit before the stem was cut, but this failed, and shooting will be tried to dislodge the part of the stem cut at the bottom. Bottom of the hole is 7,195 feet in the basal Glen Rose, with top of the pay at 7,185 feet. It is the first Glen Rose oil discovery in the Woodbine Basin in East Texas.

The three companies, each holding a third interest in the block of 12,000 acres, are preparing to drill another Glen Rose test 900 feet southeast, 467 feet out of the southeast corner of a 149-acre lease in the W. P. Wyche Survey, and on McElreath & Suggett lands.

A number of miles south, American Liberty Oil Co. E. B. LaRue and others are moving in heavy rig on the south bank of Hume's lake in the LaRue area in eastern Henderson County. They have a block of 6,000 acres, with Humble Oil & Refining Co., Sun Oil Co., Magnolia Petroleum Co., W. C. Windsor of Tyler and N. R. Royall, Jr., of Dallas, interested.

Across the county, on the northwest, along the Mexia-Mabank fault, companies and operators have been taking leases, although several large blocks are held in that area, principally by Gulf Oil Corp., Magnolia Petroleum Co. and Humble Oil & Refining Co. Several tests are expected to be drilled.

Crooked Hole

Humble Oil & Refining Co. has given up trying to drill No. 1 L. K. Riggs, in the W. Daniels Survey, deeper after failing to straighten a crooked hole. This was a Trinity test on the northeast flank of the Van field, and was junked and abandoned at 4,664 feet, with an elevation of 465 feet. It was in the Paluxy when abandoned, and rig was skidded 100 feet south.

Cayuga Extension

In the southern part of Henderson County, in the extension of the Cayuga field, where all but two wells are producing from the Woodbine sand and two wells are making gas and distillate from the Glen Rose, the first two producers, Goodnight Oil Co. No. 1 Ford-Nash, in the Holien Survey, about a mile north of production, recovered an oil-saturated core from 4,100-05 feet and shut down to run pipe.

About 2½ miles northwest, William McDougall of Tyler holds a block of 2,500 acres and has staked location on lands of the Trinity Farm Securities Co. in the H.&T.C. Survey, 2 miles east of Trinidad.

Houston County Discovery

The northern Houston County gas-distillate discovery of Placid Oil Co. on the Elliott lands, in the J. M. Procella Survey, about 6 miles northeast of Grapeland, is being completed after perforating casing at a point in the Woodbine between 5,868-5,870 feet. The test was previously drilled to 6,634 feet, but plugged back to 5,960 feet to shut off water and set pipe, perforate and complete. When it blew in last week, making gas and distillate, with some water, it wrecked the derrick, but was soon brought under control. A test through quarter-inch tubing choke showed it making 15 bbls. of distillate and some salt water in five hours, with a rated gas volume of 800,000 feet of gas with 2,150 pounds pressure. Gas will be taken by Shell Petroleum Corp. to drill on its block of 30,000 acres surrounding the town of Percilla northwest of the Placid discovery. Shell farmed out the acreage for drilling that well.

Wildcatting

Richardson & Wetherall have moved in cable tools to drill a 4,500-foot test on a 100-acre tract in the Garrett Fitzgerald Survey, on a block of 8,000 acres in Fannin County.

Glenn and others have staked location on the E. Core lands, in the H. Ball Survey, 3 miles north of Edom in Van Zandt County, to seek production from the Woodbine sand.

Another test in Lamar County will be that of Blackman & McGee on the J. M. Duck lands, J. C. Lamb Survey, northeast of Powderly. Two tests were abandoned in this county this week, one by Cooper Brothers & Sallee on the L. P. Lands, Luke Roberts Survey, 1 mile west of Deport, and one by Lowery & Cutler on the E. C. Porter farm, Thomas King Survey. The former was abandoned at 2,768 feet, elevation 458 feet and the latter at 1,647 feet, elevation of 421 feet. This one is 2 miles northeast of Chicota.

Barnsdall Oil Co. No. 1 H. C. Swanson, wildcat in the Jarvis area in eastern Anderson County, is in the R. Duty Survey. A. P. Cary Drilling Co. has the contract to go to 5,000 feet. It is several miles south of the old Boggy Creek field producing from the Woodbine.

East Texas Extension

F. W. Maddox, of Pittsburgh, Penn., has staked location on the S. T. Buie farm, James M. Dunn Survey, 15 miles northwest of Longview and 3 miles north of production in the Upshur County part of the East Texas field. He holds a block of between 1,700 and 2,000 acres.

Mar-Tex Oil Co., of Houston, purchased the producing properties of the Big Indian Syndicate in the East Texas field after the district court ordered the 50 acres of leases, containing 21 wells sold by bid. The purchasing company paid $517,000 in cash, this to be paid to more than 3,000 persons who purchased units from the operators. Court, attorney fee, taxes and other costs are to come out of the purchase money, however.

EAST TEXAS COMPLETIONS

Gregg County

Amerada Petroleum Corp. No. 16 Bumpas, 4,558-88 feet, 17 bbls. in 16 minutes. Bridwell Oil Co. No. 4 Lockett, 3,624-40 feet, 45 bbls. per hour through 1-inch tubing. Fain-McGaha, Inc. No. 11 Banknight, 3,593-3,638 feet, 21 bbls. in 15 minutes. Gulf Oil Corp. No. 13 Bacle, 3,636-45 feet, 45 bbls. per hour. Roger Lacey No. 10 Castleberry, 3,596-3,604 feet, 45 bbls. per hour. C. A. Lee No. 2 Walker, 3,595-97 feet, 20 bbls. per hour. Rajo Oil Corp. No. 11 Barrett, 3,613-38 feet, 35 bbls. per hour. Sun Oil Co. No. 11 Tate, 3,493-3,552 feet, 13 bbls. in 15 minutes. L. P. & E. Oil Co. No. 3 King, 3,662-63 feet, 60 bbls. per hour. Atlantic Refining Co. No. 13 Whaley, 3,638-3,705 feet, 92 bbls. per hour. L. W. Callender No. 17-A Walker, 3,611-12 feet, 10 bbls. per hour. T. D. Humphrey No. 4-B Spear, 3,537-39 feet, 40 bbls. in 30 minutes. Martex Oil Co. No. 7-B Still, 3,493-3,530 feet, 30 bbls. in five hours on pump. Shell Petroleum Corp. No. 29-A Laird, 3,530-44 feet, 38 bbls. in 30 minutes. Southport Petroleum Co. No. 4 I.&G.N.R.R., 3,559-71 feet, 28 bbls. in three hours. Sun Oil Co. No. 12 Smith, 3,641-50 feet, 52 bbls. per hour. Sutton & Hawkins No. 2 Blackman, 3,686-87 feet, 90 bbls. in three hours. Texas Co. No. 15 Watts, 3,695-3,702 feet, 27 bbls. in 25 minutes. Tide Water Associated No. 33 Hughey, 3,487-3,520 feet, 10 bbls. in 10 minutes.

Rusk County

Brothers Oil Corp. No. 3 Brox, 3,612-90 feet, 50 bbls. per hour. Gulf Oil Corp. No. 10 Baton, 3,560-3,657 feet, 16 bbls. per hour. Humble Oil & Refining Co. No. 15 Peterson, 3,577-3,637 feet, 42 bbls. per hour. Hurricane Oil Co. No. 6 Alexander, 3,616-28 feet, 23 bbls. in 30 minutes. Johnson & Olsen No. 16 Powers, 3,718-20 feet, 60 bbls. in 30 minutes. Shell Petroleum Corp. No. 16 Spivey, 3,643-3,712 feet, 40 bbls. in 30 minutes; No. 6 Wills, 3,603-04 feet, 21 bbls. in 30 minutes. Tide Water Associated No. 17 Christian, 3,690-3,720 feet, 20 bbls. in 15 minutes. Weaver-Crim Corp. No. 16 Laird, 3,570-83 feet, 25 bbls. in 30 minutes. Atlantic Refining Co. No. 42 Kenney, 3,566-3,652 feet, 20 bbls. per hour. Gant and others No. 7 Smith, 3,589-99 feet, 24 bbls. per hour. Humble Oil & Refining Co. No. 19 Glover, 3,710-76 feet, 50 bbls. per hour. Overton Refining Co. No. 1 A. L. Townes heirs, 3,753-56 feet, 200 bbls. per hour. Regent Oil Co. No. 8-B Harmon, 3,774-80 feet, 75 bbls. per hour. Royal Petroleum Co. No. 1 Bunker Hill School, 3,688-3,715 feet, 40 bbls. per day on pump. Stanolind Oil & Gas Co. No. 15 Alford, 3,734-37 feet, 63 bbls. per hour; No. 15 Mason, 3,594-3,620 feet, 48 bbls. per hour. Tide Water Associated No. 11-A Thompson, 3,638-84 feet, 15 bbls. in 30 minutes.

Smith County

Sinclair Prairie Oil Co. No. 14 Patterson, 3,674-75 feet, 21 bbls. in 30 minutes. Standard Oil Co. of Kansas No. 5 Wheelis, 3,794-97 feet, 35 bbls. in 30 minutes.

Upshur County

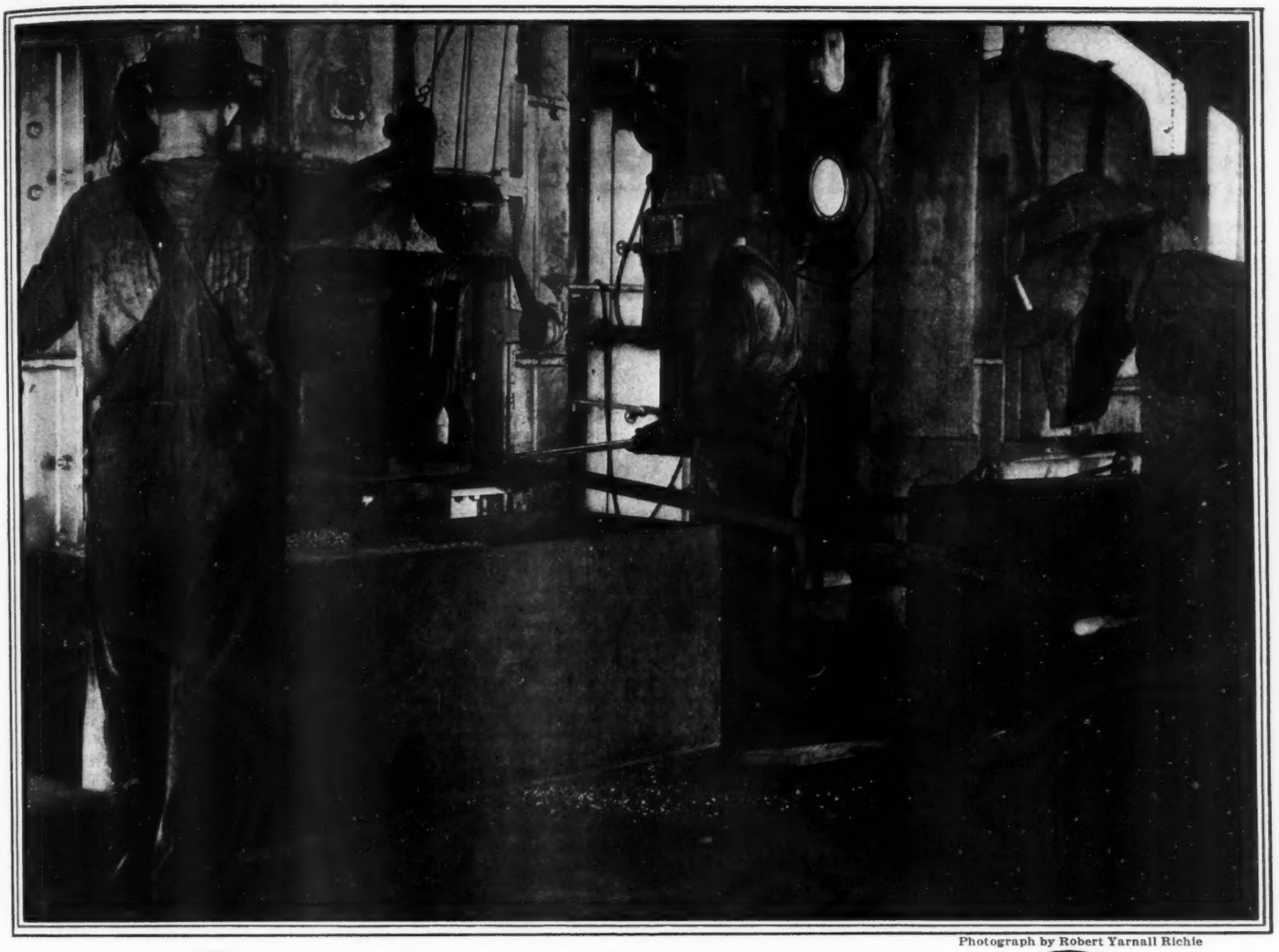
O. R. Cooper No. 6 Florence, 3,775-76 feet, 35 bbls. per hour. Creighton Drilling Co. No. 5 Hargraves, 3,726-27 feet, 47 bbls. first hour. Danciger Oil & Refining Co. No. 11 Stinchcomb, 3,854-55 feet, 30 bbls. per hour. Magnolia Petroleum Co. No. 26-A Hampton, 3,644-47 feet, 63 bbls. per hour. Monte Oil Co. No. 7 Smith, 3,696-97 feet, 40 bbls. per hour. Mudge Oil Co. No. 4-B Richardson, 3,715-40 feet, 75 bbls. an hour. M. G. Salter No. 1 Salter, 3,817-34 feet, dry and abandoned. Tide Water Associated and others No. 27 Flewellen, 3,709-24 feet, 36 bbls. per hour. J. K. Wadley No. 1 Florence, 3,731-34 feet, 32 bbls. per hour; No. 1 Owens, 3,713-18 feet, dry and abandoned.

MISCELLANEOUS COMPLETIONS EAST TEXAS FIELD

Anderson County

Southport Petroleum Co. and others No. 1 I.&G.N.

(Continued on Page 163)



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By STAFF CORRESPONDENT

ILLINOIS LEASING CAMPAIGN SHOWING NO SIGN OF LET-UP

MATTOON, Ill., May 17.—Every oil company owning acreage in the Central Illinois Basin is active in signing up new leases wherever there are any available within the Basin, and in addition, leasing crews are active in a strip of territory running through the northwestern counties of the state and into southeastern Iowa, and in southwestern Indiana. All this is being done in the face of the fact that thus far no sensational wells have been completed in the new Basin area.

The Adams Louisiana Oil Co. No. 3 Merryman, NE SW SW section 21-4n-1e, Patoka pool, Marion County, completed late in February as an 80-bbl. well after a 10-quart shot in Benoist sand of the Chester series, (Upper Mississippian) was not as good as the first two on the lease, and another disappointment was Pure Oil Co. No. 1 Billington, SE NE NE section 27-1n-7e, which was at a total depth of 3,212 feet, and destined as a deep test because it failed to find pay in the McCloskey sand in the 2,900-foot horizon. It topped the St. Genevieve at 3,040 feet, and took a core at 3,082-3,138 feet recovering 3½ feet of Oolitic lime which was saturated at 3,082-3,085½ feet. A Schlumberger test was run, followed by a drill stem test at 3,075-85 feet. Thirty feet of slightly oily mud was recovered. Seven-inch pipe was set at 2,940 feet, and the well will be sent down to explore the lower levels. This well is a west offset to Pure Oil Co. No. 1 Bradley, SW SW NW section 26-1n-7e, which was completed in April at a total depth of 2,987 feet, in McCloskey sand of the Lower Mississippian, which was topped at 2,982 feet. It had an initial production of 100 bbls.

Pure Oil Co. No. 1 Travis, NW SW NE section 33-3n-8e, Clay County, made a drill stem test at 2,609-34 feet and recovered 40 feet of fresh water and about 10 gallons of oil. It took another core at 2,634-70 feet and was at a total depth of 2,704 feet and coring, when last reported. It is about 3,300 feet north and a little west of Pure Oil Co. No. 1 Weiler, SE SW SE section 33-3n-8e, which was a 40-bbl. well, with some salt water, from Cypress sand, Upper Mississippian, topped at 2,607 feet, total depth 2,613 feet.

Adams Louisiana Oil Co. No. 4 Glenn Merryman, SE SW section 21-4n-1e, Marion County, had Benoist sand at 1,412-21 feet. Five and one-half inch casing was set at 1,396 feet and the crew was cleaning out preparatory to shooting. Same company's No. 5 Merryman, SW SW section 21-4n-1e, found Stein sand at 1,287 feet, with a showing of oil. The sand was 15 feet higher than it was found in wells north of No. 5. Same company's No. 1 Sam Pugh, NW NW SE section 29-4n-1e, had Stein sand at 1,296 feet which carried water but no oil, and was drilling at 1,329 feet.

Hempen & Burgess No. 1 G. E. Allison, NE NW SW section 33-4n-1e, Patoka Township, Marion County, got a hole full of water in Benoist sand at 1,492-95 feet and was abandoned.

Pure Oil Co. No. 1 E. C. Brach, NW NW SW section 26-1n-7e, Wayne County, had a showing of oil at 2,003-04 feet, and signs of oil saturation at 2,090-2,110 feet, and was drilling at 2,540 feet.

Dee & Carter No. 1 J. H. Hamilton, NE SW NW section 20-4s-3e, Jefferson County, was drilling at 2,376 feet.

W. H. Hazlett and others No. 1 Joseph Haarman, NE cor. NE NE section 5-7n-6e, Effingham County, had a showing of oil beginning at 1,940 feet, and the 6-inch pipe was being underreamed to 2,025.

The deep test of Leach Bros. No. 1 Joseph Ellen, NW NW section 3-2s-10e, Edwards County, was abandoned at 4,932 feet in the Osage series. It topped the Mississippian series at 4,201 feet.

Ten wells are drilling at various depths but some of them inactive, in Marion County, most of the wells are in Patoka Township, where all the production thus far has been found. There are 16 wells actively drilling in the state and 42 temporarily inactive wells, scattered over 33 counties.

The Phillips Petroleum Co. is the latest of the major companies to locate its Illinois land office in Mattoon joining the Carter Oil Co., Gulf Oil Corp., Texas Co. and Superior Oil Co. of California.

CENTRAL OHIO

The largest producer in the Central Ohio field during the week was Preston Oil Co. No. 4 A. Vanwinkle, section 14, Perry Township, Coshocton County, completed below the Clinton sand at 3,134-83 feet, where it produced 147 bbls. the first 24 hours after shot.

An unusual number of wells, especially in the east central counties of Knox, Licking and Coshocton, have made good showings and it is believed will result in a large number of tests.

In Licking County, section 10, Fallsbury Township, Emerald Petroleum Co. No. 8 Jasper Martin was completed below the sand at 802-11 feet and produced 5 bbls. after shot. The company is drilling below 1,790 feet in No. 3 Charles Cullison, section 14. In section 2, Franklin Township, Bishop & Patton No. 7 Jane Hirst showed for a small producer at 732-40 feet and will be shot. In Newark Township, Wehrle Gas Co. is rigged up on the William Wright property. In section 23, Madison Township, G. H. Long has moved in a machine for No. 9 Eliza Fulton. In section 25, Perry Township, Will Producing Co. has moved a rig on the Sarah Harsch heirs property. In section 6, Armbruster & Stricker are spudding No. 8 Sarah Patton and in section 17, George Vandergrift is rigged up for a second test on the T. R. Vanallen property.

The largest gas well completed in some time in Ohio was brought in by Ohio Fuel Gas Co. on the David Cornell farm, section 18, Butler Township, Knox County. Completed below the second Clinton sand at 3,059-72 feet, it gauged 4,120,000 feet. In section 19, Howard Township, J. B. Reed & Co. No. 1 J. Workman was drilled through the Berea at 670-75 feet, where it made 100,000 feet which blew down to 40,000 feet and it will be drilled to the Clinton sand. In section 23, Union Township, Upham Gas Co. No. 1 Julius Smith, which made a very good show of oil and gas naturally in the Clinton, has not been shot because of leaking casing. H. E. Perkins' test on the William Durbin lease, reported with an initial of 175 bbls. last week, has a settled production of 80 bbls. It is in section 4.

A. C. Leathers & Co. have completed two more tests in the new Huron County gas field, both small gas wells. The first was on the Charles Blatt, Jr., farm, section 6, Hartland Township, with a settled production of 146,000 feet from the shale at 320-40 feet. The second was on the Fred Jarrett farm, section 4, and made 518,000 feet from the same formation. Both had an initial well above this last gauge. The same operators are spudding on the Clarence Chandler farm, section 34, Norwalk Township, and are spudding on the Levi Hartell property.

In Lot 53, Montville Township, Medina County, Ohio Fuel Gas Co. completed a commercial gas well on the Matilda Fleck property, the second on this farm, completed below the Clinton at 3,486-91 feet. In Lot 59, same township, Ohio Fuel Gas Co. completed a commercial gas well on the Maude Rodgers property from the same formation.

William C. Marable has abandoned the test on his property, section 4, Sugar Creek Township, Wayne County. It was drilled through the Berea at 810-20 feet without a show.

In Morgan County, Lot 18, Marion Township, Cumberland Oil Co. No. 22 Henry Hopkins was drilled through the first Cow Run sand at 453-60 feet and produced 2 bbls. after a shot. In section 13, W. T. Bowman No. 9 Adam Thompson, which made one-half barrel naturally in the same sand at 405-39 feet, was increased to 1½ bbls. after a shot. In section 32, J. V. Bowman is rigged up for No. 6 C. M. Huffman. In Location 1097, Windsor Township, Burt & Son No. 9 Susan Minor, which made a show of oil in the Peeker sand at 445-88 feet, was shot into water and they are trying to exhaust the water.

In Lawrence County, section 18, Union Township, Shale Development Co. has staked a location for the second test on the First Huntington National Bank property. In section 35, Windsor Township, Petri & Newman are drilling below 990 feet on the Caughlia Hunt lease.

In Guernsey County, section 6, Jefferson Township, George Jewell & Co. No. 3 Henry Armstrong was drilled through the Berea at 1,113-59 feet, through a break to the sand again at 1,163-67 feet, where it made 339,000 feet naturally. In section 15, Merle McCullough is rigged up on the Walter Burnsworth. In section 10, Wheeling Township, Beabout & Co. is rigged up for a second test on the Elmer Hamilton lease.

Wilbur Keith & Co. has completed the test on the Lafe Milligan, section 11, Liberty Township. It was drilled through the Berea at 1,159-1,205 feet, through a break to the sand again at 1,209-13 feet where it gauged 496,000 feet with a rock pressure of 208 pounds. In section 9, Millwood Township, Barnesville Development Co. is rigged up for a second test on the William Anderson lease.

Frank Walton & Co. No. 3 George Anderson, section 11, Warwick Township, Tuscarawas County, topped the Berea at 965 feet, made a show of oil at 975 feet and a flash of gas at 1,019 feet and is drilling deeper.

In Monroe County, section 24, Perry Township, Charles Hogue No. 1 W. S. Howell made 2 bbls. naturally in the Injun sand at 1,485-1,585 feet and found the Squaw sand at 1,585-1,645 feet and the Berea at 1,993-96 feet, dry, and was shot in the Injun sand which failed to increase the production and has been abandoned. In section 5, Adams Township, Stout & Shafer are rigged up for No. 4 Frank Starkey. In section 9, Franklin Township, Preston Oil Co. No. 2 Ernest Mallet gauged 80,000 feet in the Injun sand at 1,245-46 feet.

Home Utility Co. No. 8 J. E. Grimes, section 32, Wayne Township, Belmont County, completed below the Salt sand at 1,201-11 feet, had an initial gauge of 74,000 feet naturally and gauged 54,000 feet when tubed.

In Fairfield County, section 5, Pleasant Township, City Natural Gas Works No. 3 Ella Tschopp drilled into the Clinton and made 100,000 feet naturally. Same operators have completed No. 7 John Stuckey as a 150,000-foot well.

In Washington County, section 17, Dunham Township, McTaggart & Co. No. 2 J. T. Miller was completed below the first Berea at 1,948-51 feet and gauged 250,000 feet after a shot. In section 6, Barlow Township, Devitt & Co. are drilling No. 18 Francis Fisher. In section 26, Grandview Township, Graham & Rinerd are rigged up on the A. D. Heddleston property. Patterson & Miller are rigged up for No. 3 H. J. Smith, section 19, Ludlow Township. In Lot 37, Salem Township, Earl Montgomery is rigged up for No. 3 William Gross Sr. heirs.

In Athens County, section 17, Lodi Township, Ohio Fuel Gas Co. has staked a location on the Floyd Hartley property. In section 16, the company is moving a machine for No. 4 State of Ohio. In section 16, Rome Township, Williams Brothers are moving a machine in for the second test on the Grace Leslie and others lease.

In Meigs County, section 3, Rutland Township, H. B. Nelson has completed the test on the Lemione Hysell property as a small gas well. It was drilled through the second Cow Run sand at 590-622 feet where it made 50,000 feet, through the Second Salt sand at 700-61 feet and gauged 55,000 feet or a total of 105,000

(Continued on Page 159)

Kansas Developments

By
DAL DALRYMPLE

NEW POOLS IN RICE-BARTON COUNTIES; BIG TRAPP WELL

New pools were opened and old areas were extended to feature the farflung oil field activities in Kansas the past week. A new Siliceous lime pool was opened in Barton County at C. L. Price and others No. 1 Kraft, SW NW NE section 10-17-11w, northwest of the Bloomer field. It topped Siliceous lime at 3,281 feet and had a hole full of oil at 3,288½ feet, total depth. It pumped 135 bbls. of oil in one and one-half hours and was shut in for tankage.

Another new producing area in Rice County was indicated at Empire Oil & Refining Co. No. 1 Bredfeldt, C N half N half SW section 7-18-9w, northwest of the Gouldner pool. Corrected top of Siliceous lime was 3,223 feet and at 3,240 feet, total depth, 900 feet of oil rose in the hole in nine and one-half hours, later pumping 110 bbls. of oil in 10 hours and 30 minutes. It may be acidized.

An extension of the busy Trapp field of Russell County was seen at Empire Oil & Refining Co. No. 2 Bender A, SE NE NW section 25-15-14w, which may prove a connection with the Ochs pool to the west. Siliceous lime was found at 3,327 feet, with total depth of 3,331 feet. It had a hole full of oil and was awaiting tankage and connections for a production test. It will open an extensive area between the two pools to development. The Ochs pool, opened about 10 years ago, has only 12 oil wells.

The largest producer yet to be drilled in the Trapp field was completed the past week at Phillips Petroleum Co. No. 9 Hoffman, NW SW SE section 31-15-13w. on the south side of the pool. It was rated as a 3,340-bbl. well.

The new Landon-McCaig pool in southern Butler County apparently is defined on the north at Sinclair Prairie Oil Co. No. 1-A Sutter, SW SW NW section 18-28-7, reported shut down for orders at 2,729 feet. A show of oil was found in Bartlesville sand topped at 2,691 feet; top of Mississippi lime was 2,722 feet. It is about 700 feet northwest of the Landon discovery well, which some observers now believe is on the north edge of the pool.

E. J. Shaffer and E. B. Shawver have started drilling at No. 1 Hege, NE NE SE section 26-22-2w, wildcat between production in the Halstead and Sperling pools, Harvey County. It was drilling below 1,700 feet.

Russell County

Six new producers were completed in the busy Trapp-Sellens district, Russell County.

Phillips Petroleum Co. No. 9 Hoffman, NW SW SE section 31-15-13w, found Siliceous lime at 3,309 feet; total depth 3,320 feet, swabbed 325 bbls. of oil in six hours; acidized, pumped 1,670 bbls. in 12 hours and made potential of 3,340 bbls. Same company's No. 8 Hoffman, SE NW SE section 31-15-13w, pumped 1,380 bbls. of oil in 12 hours, making potential of 2,760 bbls. Top of Siliceous lime was 3,327 feet; total depth 3,338 feet.

Shell Petroleum Corp. No. 3-A Michaelis, NW SW NE section 31-15-13w, had Kansas City lime at 3,007 feet, total depth 3,035 feet, and pumped 415 bbls. of oil and 244 bbls. of water in 24 hours.

Skelly Oil Co. No. 3 Neidens, NE SW NE section 32-15-13w, had Siliceous lime at 3,333-38 feet, total depth, acidized, swabbed 90 bbls. of oil in three hours; re-acidized, pumped 1,004 bbls. in 12 hours and made potential of 2,008 bbls.

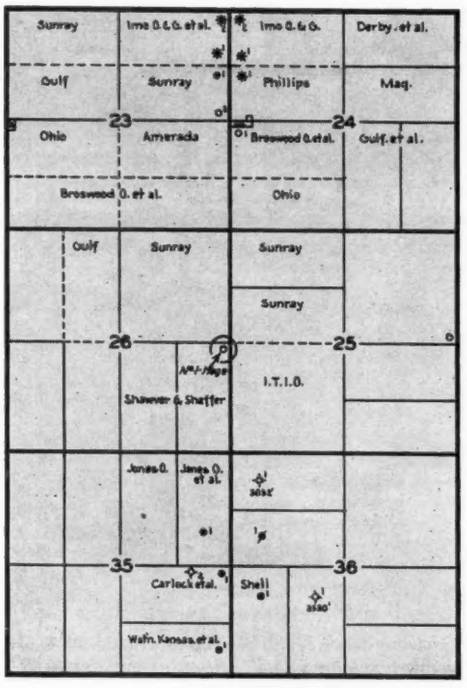
W. I. Southern, Inc., No. 8 Boomhower, SW SE NW section 32-15-13w, had Siliceous lime at 3,275-86 feet, total depth, pumped 550 bbls. of oil in 12 hours and made potential of 1,100 bbls.

Sinclair Prairie Oil Co. and others No. 2 K. Sellens, SE SW SW section 25-15-13w, Sellens area, found Siliceous lime at 3,370-73 feet, total depth, swabbed 462 bbls. of oil in 18 hours and pumped 996 bbls. in 24 hours.

In the Hall pool, Smoky Hill Oil Corp. No. 2 Miller NW cor. section 31-14-13w, topped Kansas City lime at 2,856 feet, was bottomed at 2,946 feet, acidized and made potential of 1,085 bbls. of oil.

Saco Oil Co. and others No. 1 Pond, SW SW NW section 21-15-15w, Steinert area, had Siliceous lime at 3,330 feet and was dry and abandoned at 3,350 feet, total depth.

First reports of new Russell County operations: Gulf Oil Corp. No 7 Ehrlich, NE SE NW section 1-14-15w, moving in material; Transwestern Oil Co. No. 8 Helen Polcyn, SW SE SE section 10-14-15w, rig; same company's No. 9 Helen Polcyn, NW SE SE section 10-14-15w, building rig; same company's No. 6 William Polcyn, SE NW SW section 11-14-15w, rigging up rotary; same company's Katharina Polcyn, SW NW NW section 14-14-15w, building rig; Darby Petroleum Corp. No. 1 Michaelis, NE NE SE section 26-15-14w, building rig; Derby Oil Co. and Reserve Development Corp. No. 4 Michaelis, NW SW NW section 13-15-13w, building rig; same operators' No. 6 Michaelis, SE SW NW section 31-15-13w, rigging up rotary; Gulf Oil Corp. No. 3 Hoffman, NE SE SW section 31-15-13w, rigging up rotary; same company's No. 4 Hoffman, NW NE SW section 31-15-13w, building rig; Phillips Petroleum Co. No. 11 Hoffman, NW SE SE section 31-15-13w, building rig; same company's No. 12 Hoffman, NE SE SE section 31-15-13w, location.



Mid-Continent Map Co., Wichita.

Shaffer & Shawver have started work at No. 1 Hege, section 26-22-2w, wildcat between the Halstead and Sperling pools, Harvey County

Rice County

Five wells were completed in the Silica-Schartz area, one in the Chase pool and two in the Theede sector of Rice County.

The largest producer was Republic Natural Gas Co No. 3 Wendell, NW SE SE section 32-19-10w, Silica field. After topping Siliceous lime at 3,277 feet and stopping at 3,293 feet, total depth, it made potential of 2,323 bbls. of oil.

Gulf Oil Corp. No. 6 Wendell, SW SW SE section 32-19-10w, had Siliceous lime at 3,280 feet, was bottomed at 3,295 feet. swabbed 230 bbls. of oil in six hours, was acidized and made potential of 1,657 bbls. Stanolind Oil & Gas Co. No. 7 Mitchell, SW NE SW section 32-19-10w, found Siliceous lime at 3,303 feet, total depth 3,337 feet, and made potential of 1,687 bbls. of oil. Same company's No. 3 Panning, NW SE NW section 33-19-10w, made potential of 1,405 bbls. of oil in 20½ hours from Siliceous lime topped at 3,282 feet, total depth 3,330 feet.

Texas Co. No. 6 Kielle, NE SW SW section 34-19-10w, Schartz area, found Siliceous lime at 3,318 feet, was bottomed at 3,328 feet, acidized and made potential of 1,119 bbls. of oil.

Ohio Oil Co No. 3 Proffitt, SW NW SE section 18-20-9w, Chase pool, made potential of 1,130 bbls. of oil from Siliceous lime found at 3,327 feet, total depth 3,336 feet.

Reserve Development Corp. No. 2 Patton, NW cor. section 16-21-7w, Theede sector, had Conglomerate at 3,371 feet, was bottomed at 3,383 feet, flowed 346 bbls. of oil in six hours and made potential of 1,311 bbls. Same operator's No. 3 Patton, NE NW NW section 16-21-7w, topped Conglomerate at 3,376 feet, total depth 3,382 feet, flowed 490 bbls. of oil in six hours, making potential of 1,852 bbls.

New work in Rice County: Shell Petroleum Corp. No. 1 Zajic, NW NW NE section 13-18-8w, location; Skelly Oil Co. No. 4 Dittmers, SE SE SW section 28-19-10w, rig; Republic Natural Gas Co. No. 6 Wendell, SE cor. section 32-19-10w, rig; Shell Petroleum Corp. No. 2 Hathaway, NW SW NE section 33-19-10w, building rotary rig; Skiles and others No. 1 Campbell, SE SE NE section 28-19-9w, wildcat, cellar; Gulf Oil Corp. No 4 Schmidt, NE SW SE section 6-20-10w, cellar; D. R. Lauck No. 1 Heter, SE NE SE section 1-21-8w, pits; C. L. Carlock and others No. 1 Oden, NW cor. section 5-21-7w, cellar; Atlantic Refining Co. No. 1 Gossman B, NW NE NW section 8-21-7w, an old well plugging back; Garden & Haines Oil Co. No. 4 Gossman, SW NE NW section 9-21-7w, building rig; Reserve Development Corp. No. 5 Patton, NW NE NW section 16-21-7w, cellar.

Ellis County

Deep Rock Oil Corp. No. 2 Baumer, NE NW NW section 27-11-17w, Bemis pool, Ellis County, made potential of 2,938 bbls. of oil from Siliceous lime topped at 3,478 feet, total depth 3,482 feet.

British American Oil Producing Co. No. 8 Bemis, SE SW SW section 22-11-17w, topped Siliceous lime at 3,424 feet, was bottomed at 3,432 feet, and made potential of 2,864 bbls. of oil.

Ryan Consolidated Corp. No. 3 Bemis B, SE SW NW section 22-11-17w, made potential of 2,634 bbls. of oil and was completed at 3,442 feet, total depth. Top of Siliceous lime was 3,429 feet.

Two wells in the Walter pool were completed. Lario Oil & Gas Co. No. 1 Walter B, NE SE SW section 2-12-18w, had Siliceous lime at 3,655 feet; total depth 3,621 feet, plugged back to 3,240 feet, shot and was dry and abandoned.

Carter Oil Co. No. 1 Staab, NE NE NW section 11-12-18w, topped Siliceous lime at 3,615 feet, was bottomed at 3,621 feet, made potential of 900 bbls. of oil, down four to six hours; later, made 24-hour potential of 1,427 bbls. of oil.

In the Shutts area, Wolf Creek Oil Co. No. 1 Bemis,

SW SW NW section 4-12-17w, topped Siliceous lime at 3,564 feet, total depth 3,568 feet, pumped 1,251 bbls. of oil in 10 hours and made potential of 2,851 bbls.

Phillips Petroleum Co. and others No. 2 Bertha, NE NE SE section 5-12-17w, made potential of 2,416 bbls. of oil from Siliceous lime topped at 3,508 feet, total depth 3,520 feet. Gulf Oil Corp. No. 3 Swires, SE SE SW section 8-15-18w, was an abandoned location.

New Ellis County operations: Deep Rock Oil Corp. No. 6 Baumer, NE NE NW section 27-11-17w, building rig; Sinclair Prairie Oil Co. No. 2 Romine, SE SW SW section 7-11-16w, location; Republic Natural Gas Co. No. 2 Romine, NE NW NW section 18-11-16w, moving in material; Phillips Petroleum Co. No. 3 Shutts, SE SE NE section 5-12-17w, location.

Ellsworth County

Two producers were completed in the Ellsworth County sector of the Bloomer field. Largest was Yarnell & Spencer No. 1 Gemeinhardt B, NW SW SW section 21-17-10w. It topped Kansas City lime at 2,935 feet, was bottomed at 3,071 feet, plugged back to 3,049 feet, acidized and flowed 1,021 bbls. of oil, with 6 per cent water, in six hours, making potential of 3,870 bbls.

Gulf Oil Corp. No. 4 Grizzell, SE SW NW section 31-17-10w, had Siliceous lime at 3,240 feet, total depth 3,250 feet, acidized and made potential of 1,930 bbls. of oil.

In the Lorraine area, Carter Oil Co. and others No. 4 Elizabeth, SE SE NE section 34-17-9w, topped Siliceous lime at 3,179 feet, total depth 3,183 feet, acidized but failed to make a producer and was abandoned.

Gulf Oil Corp. No. 6 Grizzell, NE SW NW section 31-17-10w, was building rotary rig.

Barton County

The largest producer of the week completed in Barton County was Magnolia Petroleum Co. No. 5 Roetzel, SE NW NE section 24-20-11w, Peter pool. After topping Siliceous lime at 3,242 feet and drilling to 3,253 feet, total depth, it swabbed 632 bbls. of oil in 10 hours and made potential of 1,526 bbls.

Lario Oil & Gas Co. and Atlantic Refining Co. No. 5 Peter, SE NE NW section 24-20-11w, was abandoned when casing collapsed at 3,312 feet, total depth.

In the Bloomer field, Texas Co. No. 6 Moran, NW SE SW section 25-17-11w, found Siliceous lime at 3,289 feet, was bottomed at 3,303 feet, acidized and made potential of 1,373 bbls. of oil.

Magnolia Petroleum Co. No. 2 Mueller, NE NW NE section 1-18-11w, found Siliceous lime at 3,248 feet, total depth 3,259 feet, and made potential of 1,497 bbls. of oil.

New work in Barton County: Empire Oil & Refining Co. No. 2 Wittig, NW NE NW section 16-16-13w, building rig; Armer & Vernon No. 2 Ainsworth, SE NE SE section 33-16-13w, location; Continental Oil Co. No. 3 Ainsworth, SW SE NE section 33-16-13w, location; Stanolind Oil & Gas Co. No. 1 National Bank, SE SE SW section 36-16-13w, wildcat, location; Skelly Oil Co. No. 9 Bloomer, SE SW NE section 36-17-11w, rigging up rotary; Magnolia Petroleum Co. No. 7 Roetzel, NE SW NE section 24-20-11w, rig

Estimated Daily Production

Estimated daily average production of Kansas for the week ending May 15, and for the preceding week, was as follows:

	Barrels	
	May 15	May 8
Oxford City	2,100	2,225
Burrton	16,300	16,525
Ritz-Canton	5,475	5,500
Graber	3,225	1,875
Hollow-Nikkel	3,675	3,700
Lerado	1,925	2,250
Voshell	2,900	2,925
Wellington	3,325	3,100
Ellsworth County:		
Lorraine	5,675	6,450
Other pools	1,395	1,550
Rice-Barton counties:		
Bloomer	4,625	5,150
Chase	8,350	7,575
Geneseo	2,025	1,725
Raymond	2,325	2,325
Silica	21,000	15,450
Keesling	1,975	2,300
Hauschild	4,075	4,150
Miscellaneous Rice	8,820	9,400
Miscellaneous Barton	5,335	3,965
Russell County:		
Fairport	2,110	2,645
Gorham-E. Gorham	3,445	2,930
Russell	2,650	2,410
Sullivan	8,415	7,990
Trapp	8,500	6,855
Miscellaneous Russell	6,215	5,680
Sedgwick County:		
Valley Center	1,140	1,155
Miscellaneous	2,635	2,685
Ellis County:		
Bemis	4,125	2,525
Miscellaneous Ellis	2,120	2,180
Kingman County	745	980
Stafford County	3,125	2,305
Greenwood County	9,600	9,600
Butler County	16,100	16,850
Other fields	23,025	21,295
Total Kansas	198,475	186,225

Reno County

National Petroleum Corp. No. 2 Tucker, NW NW NE section 19-24-4w, Burrton field, Reno County, made potential of 2,286 bbls. of oil after acid treatment. Top of Chat was 3,325 feet; total depth 3,386 feet.

Bullard & Wallace No. 1 Lyman, NW NW SE section 16-24-4w, found Chat at 3,310 feet, was bottomed at 3,369 feet; acidized and made potential of 536 bbls of oil.

New operations reported in Reno County were as follows: Wilcox Oil & Gas Co. No. 3 Montford A, SW NW SW section 12-23-4w, building rig; Carter Oil Co., Continental Oil Co. and Empire Oil & Refining Co. No. 1 Bontrager, C E half NE NE section 26-24-5w, wildcat, location; National Petroleum Corp. No. 5 Tucker, SE SW NE section 19-24-4w, cellar; Phillips Petroleum Co. No. 3 Astle Island, SW NE NE section 19-24-4e, cellar; same company's No. 4 Astle Island, NW NE NE section 19-24-4w, location; Empire Oil & Refining Co. No. 1 Scheuchzer, NE NE NW section 20-24-4w, an old well, deepened from 3,379 feet to 3,384½ feet, acidized, made potential of 478 bbls. of oil with 130 bbls. of water in 24 hours, but not a completion; Haynes Drilling Co. and others No. 4 Mueller, NE SE NW section 30-24-4w, building rig.

Cowley County

I. Nadel and Texas Co. No 3 David B, SW NW SE section 35-30-4e, Cowley County, had sand at 2,934 feet, total depth 2,963 feet, was shot and swabbed 70 bbls. of oil in 23 hours. Potential rating was 65 bbls.

Ryan Consolidated Co. No. 1 Couch, SW SW SE section 13-30-5, wildcat north of the Eastman area in Cowley County, opened a new Bartlesville sand producing area. It topped sand at 2,796 feet, was bottomed at 2,842 feet, was shot and pumped 43 bbls. of oil and 7 bbls. of water in 24 hours.

Lewis Production Co. No. 2 David, SW NW NE section 2-31-4, was dry and abandoned at 2,990 feet, total depth.

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JENKINS VALVES

BRONZE—IRON—STEEL

L. S. Wright, still foreman; E. J. Mary, refinery superintendent and C. W. Berger, chemist at Globe Oil & Refining Co.'s plant at McPherson, Kans.

W. M. McKnabb No. 1 Moon, C SE NW section 21-32-5, Cowley County, set 10-inch casing at 260 feet and was waiting.

Harvey County

Olson Drilling Co. and Shell Petroleum Corp. No 1 Schrag, NW NE SW section 30-23-3w, Harvey County sector of the Burrton field, topped Chat at 3,290 feet, was bottomed at 3,366 feet, flowed 156 bbls. of oil in 24 hours; acidized and made potential of 599 bbls.

New work in Harvey County: Hipple and others No. 2 Norris, NE NW SW section 30-23-3w, location; Olson Drilling Co. and Lario Oil & Gas Co. No. 1 Murphy, SW NW SE section 30-23-3w, rigging up rotary; Olson Drilling Co. No. 4 Nelson, SW SE NW section 30-23-3w, cellar.

Rush County

Sinclair Prairie Oil & Gas Co. No. 1 Scheuerman, SE SE NE section 5-18-16w, wildcat northwest of the Otis area in Rush County, had LaMotte sand at 3,512 feet; Granite Wash at 3,543-50 feet, total depth, produced an estimated 6,000,000 feet of gas and was completed.

C. B. Davis No. 1 Brack, NW cor. section 23-16-16w, Winget area, had a hole full of water in Granite Wash at 3,572-3,612 feet, total depth, and was dry and abandoned.

Sumner County

Two producers were completed in the Wellington pool, Sumner County. Stelbar Oil Corp. No. 16 Erker, SE SE SW section 33-31-1w, found Chat at 3,660 feet, was bottomed at 3,706 feet, flowed 167 bbls of oil, acidized and made potential of 1,274 bbls.

Texas Co. No. 4 Carr, NW NW NE section 5-32-1w, topped Chat at 3,649 feet, total depth 3,703 feet, acidized and was shot, and made potential of 279 bbls. of oil, with 54 bbls. of water, in 22 hours.

Stelbar Oil Corp. No. 4 Rothrock, NW NW NE section 4-32-1w, was building rotary rig.

Chautauqua County

Shaffer & Howell No. 1 Landon & Floyd, NE NE SW section 23-32-10, Chautauqua County, found lime at 1,910 feet, was bottomed at 1,955 feet, acidized and was completed as a 50-bbl. well.

Three new operations in Chautauqua County were reported. Sagamore Oil & Gas Co. No. 3 White B, C SE NW section 15-32-12, had lime at 1,607 feet, total depth 1,682 feet, produced 250,000 feet of gas and was shut down but not a completion. Denman Brothers No. 3 French, NW NW SE section 36-32-12, was drilling at 1,050 feet. C. L Carlock and others No. 1 Black, SW SW NW section 29-32-13, was drilling at 1,250 feet.

Butler County

Roth & Faurot and others No. 2-A King, C S half NE SW section 17-24-4, Butler County, had Kansas City lime at 2,240 feet, total depth 2,247 feet, was acidized and made potential of 70 bbls. of oil.

Aylward & Wixson No. 1-A Glancey, SW NW SW section 10-26-3e, was dry and abandoned at 2,842 feet.

Roth & Faurot No. 2 Harris, C N half NE SE section 14-27-7, new Butler County test, was moving in material.

McPherson County

T. C. Johnson No. 2 Good, SW SE NW section 13-19-3w, was moving in material for a new McPherson County test.

Woodson County

Saco Oil Co. No. 4 Klick, C S half SW SW section 20-25-14, had sand at 1,380-1,409 feet, total depth 1,411 feet, was shot and pumped 104 bbls. of oil in 24 hours.

Wirt Gaskins No. 1 Degree of Honor, NW cor. section 19-24-14, Woodson County, was a location.

Sedgwick County

Sam Murphy and others No. 1 Thome, SW SW NW section 19-28-1w, wildcat in Sedgwick County, topped Kansas City lime at 2,828 feet; Chat 3,410 feet; Simpson 3,720 feet, Wilcox sand 3,750 feet, Siliceous lime 3,796 feet, water intruded and it was dry and abandoned at 3,836 feet, total depth.

Chase County

Polhamus and others No. 4 Leedy, C E half SW section 25-22-9, Chase County, had sand at 2,517-50 feet, total depth, was shot, and flowed 137 bbls. of oil in 24 hours, completed.

Pawnee County

Capshaw and others No. 1 Riederer, C W half NW SE section 29-21-19w, wildcat in Pawnee County, topped

(Continued on Page 149)

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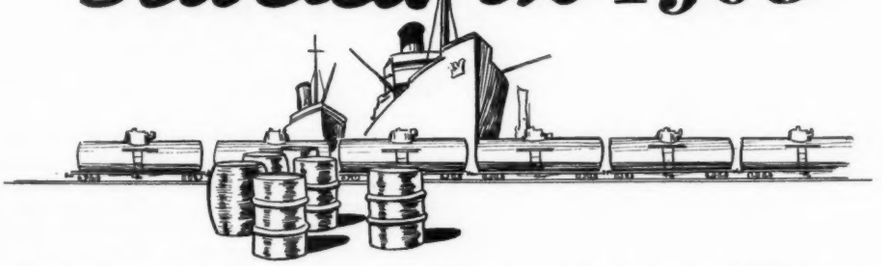

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Michigan Field Report

By
PAUL A. ELLIOTT

PRODUCTION OF OIL AND GAS SWELLED BY DRILLING BOOM

MUSKEGON, Mich., May 17.—Featured by the opening of the most important extension well in the Gladwin County, Buckeye Township, field since its discovery several months ago, Michigan development continued its rapid rise during the past week, adding 6,809 bbls. aggregate initial in 12 new oil wells and 41,000,000 feet of new gas production. There were six dry holes.

Official monthly figures of the Oil and Gas Association of Michigan reveal the effect of the greatest drilling boom ever witnessed in the state, that in the Buckeye field, as April established daily average runs of 44,858 bbls. of oil from 1,425 wells, compared with 39,351 bbls. from 1,396 wells in March and 31,326 bbls. from 1,366 wells in February.

Forty per cent of the state's total production for April was represented by the average daily output of 17,503 bbls. developed from 63 wells in the Buckeye field. This compares with 36 wells making 12,351 bbls. daily in March.

Still second, though now outdistanced about 50 per cent by Buckeye, was the Porter-Yost field of Midland County, where 426 wells averaged 11,951 bbls. daily during April, followed by Clayton-Arenac producing 3,234 bbls. from 15 wells, Sherman-Isabella making 2,861 bbls. from 12 wells, and Ogemaw doing 2,455 bbls. from 189 wells. Greendale-Chippewa, original Mount Pleasant field, made 2,097 bbls. daily from 276 wells. Other fields produced less than 2,000 bbls. daily, including Crystal-Montcalm.

For the second successive month, because of the Buckeye output, Michigan produced more than a million barrels of crude oil, a record previously maintained from January, 1935, to July, 1936.

RECORD FOR APRIL

Pool—	Wells	Ave. daily runs
Porter-Yost	426	11,951
Greendale-Chippewa	276	2,097
Geneva-Midland	4	38
Vernon-Leaton-Denver	104	1,930
Sherman-Isabella	12	2,861
Crystal-Montcalm	110	1,700
Home-Edmore	8	103
Vickervville	1	0
Winfield-Montcalm	1	10
Beaverton	23	523
Buckeye-Gladwin	63	17,503
Ogemaw	189	2,455
Clayton-Arenac	15	3,234
Saginaw	61	76
Birch Run-Saginaw	25	121
Dundee-Monroe	2	22
Allegan (Salem)	2	116
Muskegon	103	118
Total	1,425	44,858

Buckeye-Gladwin

The Hanners Development No. 1 Armstrong, NE NW SW section 23-18n-1w, in Gladwin County, known as the "Tattle-tale," because of its strategic location between proven sectors of the new central Michigan field, was credited with an initial flow of 54 bbls. in the first 40 minutes. A natural initial of 300 to 400 bbls. daily followed. The well then produced about 50 bbls. an hour after acid treatment. The Dundee was topped at 3,522 feet and drilled to 3,593 feet. The new well may establish a direct connection between two producing areas, thus probably adding several thousand acres to proved territory, or it may turn out a third pool in the chain. It already has started a new rush to Buckeye.

Though overshadowed by the Hanners-Armstrong, Buckwin Oil Co. No. 1 State, SE NW SE section 11, same township, followed rapidly on the heels of the same company's No 3 Buckwin, the largest well yet developed in the field. The No. 3 was rated good for about 3,500 bbls. daily from the Dundee, while the No. 1, largest new Michigan producer last week, flowed 64 bbls. an hour. It topped the limestone at 3,595 feet, first hit the pay at 3,599 feet and again at 3,620-25 feet, completing at 3,630 feet.

Sun Oil Co. completed one of its many tests in an active drilling campaign in Michigan by opening the No. 5 Salla, NE NW SW section 17, Buckeye Township, for 55 bbls. an hour.

Daily Crude Oil Co. hit 225 bbls. natural in the No. 1 Jakab, NE SW SE section 10, same township, but was yet to be acidized.

Mammoth Producing & Refining Corp. struck a natural flow of 150 bbls. a day in the No. 2-B State, NW SE SE section 11, same township, and was treating. Mammoth No. 1-C, NE SE SE section 10, Buckeye, which made 150 to 200 bbls. initial naturally, had not yet completed acid treating.

Mammoth No. 1 Manyet, SE NE SW section 3, in the northeast sector, was swabbing after striking the Dundee at 3,632 feet. Fletcher & Rathbun No. 1 Shumway, NE SW SE section 24, in the southeast sector, flowed unexpectedly from the Traverse at 2,790 feet, set fire to the rig, which was destroyed.

Fortney Oil Co. No. 1 Adams-Phillips, SW SE NW section 25, another extension or edge test, produced 175 bbls. gross after treating with a heavy charge of acid. It is on the edge of the southeast sector. C. L. Maguire, Inc., No. 1 Fritzwater, SE SE NE section 25, was not as successful, however, for it was reported to be making only 5 bbls. a day after several treatments.

Two acid-treated wells accounted for 950 bbls. of additional Dundee production daily, the C. W. Teater No. 1 Adamets, SW SW SW section 12, jumping from 600 to 1,000 bbls. a day, and the Wicklund Development Co No. 1-B State rising from 150 to 700 bbls.

Three Buckeye Failures

Two Buckeye Township, Gladwin County, tests were dry and a third was abandoned last week. Perhaps the more important of the former was W. H. Thouriby No. 1 Banchoff, SE SE NE section 2, northwest of proved territory in the northeast sector. It topped Dundee at 3,582 feet and encountered bottom water at 3,587 feet, though it was drilled to 3,761 feet before completion.

F. O. Whitelow No. 1 C. A. Tubbs, NW NW SE section 12, another border test of the northeast sector, hit Dundee pay at 3,635-40 feet, struck water at 3,677 feet and was finished at 3,678 feet.

Marshall Bauman No. 1 Thompson, NE NW SW section 14, one of the earlier tests drilled into comparatively small Dundee production in Buckeye, was to be plugged and abandoned owing to a sharp decline in output.

A score of other Buckeye tests were either ready to drill in, or about to case and complete in the Dundee.

Bell & Marks No. 1 Wineman, NW SW NW section 9-17n-1e, Billings Township extension test, continued testing for a show which indicated possible Dundee success.

West Michigan

Lentz & Miller, Inc., No. 1 Hardy, C N half NE NW section 21-4n-13w, proved the largest well in the new Salem Township, Allegan County, field of western Michigan when it made an estimated initial flow of 350 bbls. from pay sands encountered between 1,550 and 1,560 feet. It was the third Traverse well completed in the field, the two others making 250 and 300 bbls., respectively. Four new tests have been started by Lentz & Miller and the Muskegon Oil Corp., who together hold most of the close-in acreage.

The new tests are Lentz & Miller, Inc., No. 1 Manuel Brenner, NW NW section 16, same township, and No. 1 Albert Buege, SW NE section 17, also a Lentz & Miller project. Muskegon Oil Corp. will drill the No. 1 W. Moomey, SE NW SE section 17, and the No. 2 W. Moomey, NE NW SE, same section.

Two new wildcat tests also have been staked out by Champion Development Co. No. 1 J. Sikorsky, NE NE NE section 9-1n-12w, Otsego Township, and No. 1 C. Detling, SE SE SE section 25-2n-13w, Allegan Township, both near the southern edge of the country.

Sherman-Isabella

Two Monroe producers were added to the record of the comparatively new Sherman Township, Isabella County, field, one making 429 bbls. a day and the other 200 bbls.

McClanahan Oil Co. boosted a natural initial of 59 bbls. a day to 429 bbls. by acid treatment of No. 3 Beutler, NW SW NW section 34-15n-6w, which topped the Monroe at 3,603 feet and drilled to 3,609 feet.

Pure Oil Co. made a 200-bbl. well of the No. 3 Ryckman, SW SW NE section 33, same township, after it had done 80 bbls. naturally at 3,703 feet, in the Monroe.

Clayton-Arenac

McClanahan Oil Co. also completed No. 4 Seignious, on the discovery lease in the Clayton Township, Arenac County, field, NW SW SE section 2-20n-4e, for about 250 bbls. a day. Dundee was topped at 2,472 feet, oil encountered from 2,577 to 2,614 feet and water struck at 2,616 feet. The hole was plugged back 2 feet before completion.

Two Clayton tests struck Berea gas in commercial quantities, one deciding to complete for the gas for drilling purposes and the other to pass it up to drill on for oil.

Hal-Be-Oyle & Gas Co. No. 2 A. Barrie, NW NE SE section 9, will be saved for a flow of 1,000,000 feet of shallow gas, while the Devonian Oil Co. passed up a flow of 400,000 feet struck at 1,103 feet in the No. 2 Peavy, NW SW SE section 4.

New Gas Field Seen

Discovery of a new central Michigan gas field was forecast by Leslie T. Barber No. 1 Rice-Gaffield, SE SE NE section 20-12n-7w, in Belvidere Township, Montcalm County. The test is several miles south of the Millbrook-Hinton-Belvidere field, largest gas-producing area in Michigan. Though no gauge had been taken of the daily potential of the new well toward the close of last week, because of a break in the casing necessitating recementing, developers said it would open an area of about 5,000 acres several miles from the big field. It was drilled by the Wolverine Natural Gas Corp., of Grand Rapids, and the Superior Drilling & Producing Co. for Mr. Barber, a former state representative, whose first gas well opened the Tri-Townships field in 1934.

Other Gassers

The Wolverine company also reported a flow of 35,000,000 feet daily from the Michigan Stray sands in No. 2 Lumbert, C SW NW section 11, Belvidere Township, in the Tri-Township field, with another 15 feet of drilling proposed.

Two smaller gassers were completed in the same shallow pay sands in the New Haven Township field of Gratiot County: E. J. Posselius No. 1 Cushman, C NE SW section 3-10n-4w, making 3,025,000 feet daily, and W. E. Ross No. 2 Standish, C NE NW section 9, gauging 1,312,000 feet. The Cushman topped the Michigan Stray at 946 feet and was drilled to 979 feet, while the Standish was completed at 1,035 feet, 28 feet in.

Another Berea gasser hit a flow of 550,000 feet before cleaning out after a shot in the Ravenna Township field, Muskegon County. It was the West Michigan

(Continued on Page 149)

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Among Gulf Coast Drilling Contractors

Preparations are being made by Rutherford Drilling Co. for a production test at United North and South Development Co. No. 1 Stoddard, 1½ miles southwest of the Buckeye field in Matagorda County. After drilling to 9,875 feet, a production string of 7-inch casing was cemented at 9,875 feet, following the running of a Schlumberger survey which showed two possible oil sands, one below 9,700 feet and the other below 9,800 feet. The casing will be perforated at 9,770-76 feet and if the test fails perforations will be made in the 9,800-foot section. In the same county and in the Van Vleck field, two rotaries are operating for the Skelly Oil Co. on the Grace-Moore and Johnson leases.

Cron & Gracey extended the St. Martinsville field in St. Martin Parish by completion of Tide Water Oil Co. No. 3 Smedes, which flowed approximately 550 bbls. a day through a quarter-inch choke from a screen made at 5,551-63 feet, the total depth. In Lafourche Parish, for Fohs Oil Co., a protection string of 9⅝-inch casing has been cemented at 8,390 feet on No. 1 State, preparatory to making a deep test. Other activity is reported at the Iowa field for Barnsdall Oil Co., at Flour Bluff for Humble Oil & Refining Co., at Manvel for the Texas Co., and in the Dickinson and South Houston fields for Stanolind Oil & Gas Co. Glenn H. McCarthy has spudded his No. 2 Foley Land Co. at the recently discovered Palacios field in Matagorda County, is testing his No. 5 Longe at Amelia and has two strings of tools operating for the Humble Oil & Refining Co.

Ben (Bud) Coyle received contract for No. 7 Carter from Herton Oil Co. to be drilled in the Jeanerette field, which will be rigged up after he completes two wells for the same company. No. 8 Banta cored sand at 6,650-55 feet and 7-inch casing was cemented at 6,637 feet, while No. 6 Carter cored oil sand at 7,031-41 feet and 7-inch casing was cemented at 7,006 feet. Following the cementing of 9⅝-inch casing at 7,030 feet No. 1 Banta-Roanes is drilling below 7,600 feet and is scheduled to be a deep test.

After establishing the deepest drilling record for the Texas Coast, Loffland Brothers have abandoned Continental Oil Co. No. 2 Robbins at 11,621 feet after a Schlumberger survey showed nothing of importance. Drilling on this particular prospect has been extremely difficult due to a thick section of heaving shale overlying the structure, which has resulted in several tests being abandoned. Two protection strings of casing were used. The first string, consisting of 11¾-inch casing, was cemented at 6,430 feet, and the second of 8⅝-inch was cemented at 8,912 feet. The same procedure used on this test will probably be used on the Shepherds Mott dome which is to be tested for the same company. In the meantime, progress continues at the Amelia, Hastings and Tepetate fields for the Humble Oil & Refining Co., Stanolind Oil & Gas Co. and Continental Oil Co.

There were 32 new locations reported for the Texas Coast, a decline from the previous week. Most of the new work was reported for the Amelia field, which is in the midst of an extensive drilling campaign due to lease

(Continued on Page 166)

This day tour of Humble Oil & Refining Co. helped to drill and complete No. 1 H. J. Ellender on the north flank of the Houma gas field in Terrebonne Parish, Coastal Louisiana. It was the third test to be drilled below 12,000 feet on the Gulf Coast and has shown promise of becoming the first commercial producer below 11,620 feet. The men are M. Brunett; F. O. McCarty, (driller); W. A. Waits; Bob McLendon and Roy Endsley

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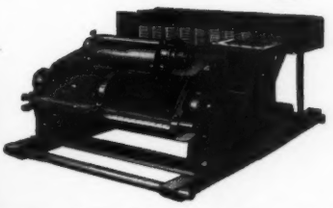

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West and North Texas

By
L. E. BREDBERG

TWO WILDCAT DISCOVERIES REPORTED IN WEST TEXAS

FORT WORTH, Tex., May 17.—Two more wildcat discoveries were made in West Texas this week and another producer will either extend an old field or open a separate one.

Moore Brothers No. 1 Texas & Pacific Land Trust (Kloh), section 33, Block 20, Township 1s, T.&P. Survey, between the old Chalk field on the west and the Dodge-Denman field on the east, topped the main pay of the latter field at 2,813 feet and made several heads of oil as it drilled at 2,900 feet where it is to be completed. This discovery is 1¼ miles northwest of an old Magnolia Petroleum Co. pumper in section 34, which has been producing for 10 years, but did not lead to drilling of any extent until the Denman field was widened toward it. The Moore discovery logged the upper pay at 2,700-25 feet, and was acidized with 2,000 gallons, but as it pumped only 50 bbls. per day the operators decided to carry it deeper, which resulted in finding the deeper pay.

West Ward Well

In the old Shipley-Monroe area in western Ward County, where a lone discovery has been producing for three years in the west of section 3, Block 1, W.&N.W. Survey, L. F. White and the Eppenauer Drilling Co. have proved more producing acreage to this old Delaware sand area by bringing in No. 1 Rector-Monroe, in the east corner of the section, 1¼ miles east of the discovery. It was estimated good for 10 to 12 bbls. naturally, and after 260 quarts in a shot from 4,638-96 feet, is flowing at the rate of 90 bbls. per day while cleaning out. It will probably make a better well when cleaned, adding the second well to this pool and starting more drilling. Delaware sand was logged at 4,670 feet, showing gas from there to 4,675 feet and oil from 6,490-96 feet. It was drilled to 4,700 feet, but was plugged back 2 feet to shut off salt water before shooting. Several other tests have been drilled south and north, but this is the first successful test since the discovery and may prove the field running east and southeast.

Upton Discovery

The third discovery in the district was also made by independent operators. Basin Oil Properties, Inc., brought in this Upton County discovery, which may prove an extension or open a field north of the old McCamey field. It is in the southeast corner of section 4, Block 3½, north of an abandonment 11 years ago, and before acid was used in treating lime wells. That well, Gulf Oil Corp. No. 1 Sanger, in section 14, Block 3, showed considerable oil but drilled into sulfur water and was given up at 3,596 feet. The new discovery, about 2½ miles northeast of production in the McCamey field, topped Dolomite pay at 2,815 feet and pipe was set and cemented at 2,680 feet, a test to be made before acidizing if not a good commercial producer. R. H. Herrington started this test on a lease of Texas Co.

Two Ordovicians

Two more interesting Ordovician tests in Crane County were announced this week. One will be drilled on a unit lease by Sinclair Prairie Oil Co. in which Tide Water Associated, Shell, Skelly, and Standard Oil Co. of Texas also hold interests. It will be 2,310 feet from the south and 330 feet from the west lines of section 3, Block B-27, P.S.L. Survey, one-half mile southeast of the recent Ellenberger strike of Gulf Oil Corp. The other deep test is to be drilled by Wilcox Oil & Gas Co. 11 miles north of the Ellenberger strike and in the northwest corner of the county. Tentative location is in the northwest quarter of section 9, Block 46, G.M.M. B.&A. Survey. It is to be carried to 7,000 feet in quest of the deep sweet oil producing horizon found on the Waddell ranch to the south. The company has a block of 10,000 acres.

Andrews and Gaines

Andrews and Gaines counties have been receiving their share of wildcat locations during the past few weeks, each reporting a new location. W. Grant Blanchard and H. J. Porter staked one on the Cox lands in the southwest quarter of section 4, Block A-30, P.S.L. in the extreme northwestern corner of Andrews County. In Gaines County Amerada Petroleum Corp. staked one about 4¼ miles southeast of the lone producer northwest of Seminole, and on the southeast outskirts of that town. Location is in section 160, Block G, W.T.R.R. Survey, on the A. Faskin lands.

Loving Wildcat

An interesting Loving County wildcat is to be drilled by Barnett Petroleum Corp. in the extreme northwestern corner and a west offset to a small producer in section 1 drilled a couple of years ago on the Cartwright lands. This new location is on the Johnson ranch, and in section 2, Block 57, Township 1, T.&P. Survey.

Outpost Test

Shasta Oil Co. has staked an interesting location 2 miles southwest of the nearest producer on the south end of the Goldsmith field in Ector County. It is in section 32, Block 44, Township 1s, T.&P. Survey, on the Katherine Sands lands, and will mean either a considerable extension to this field or will define it.

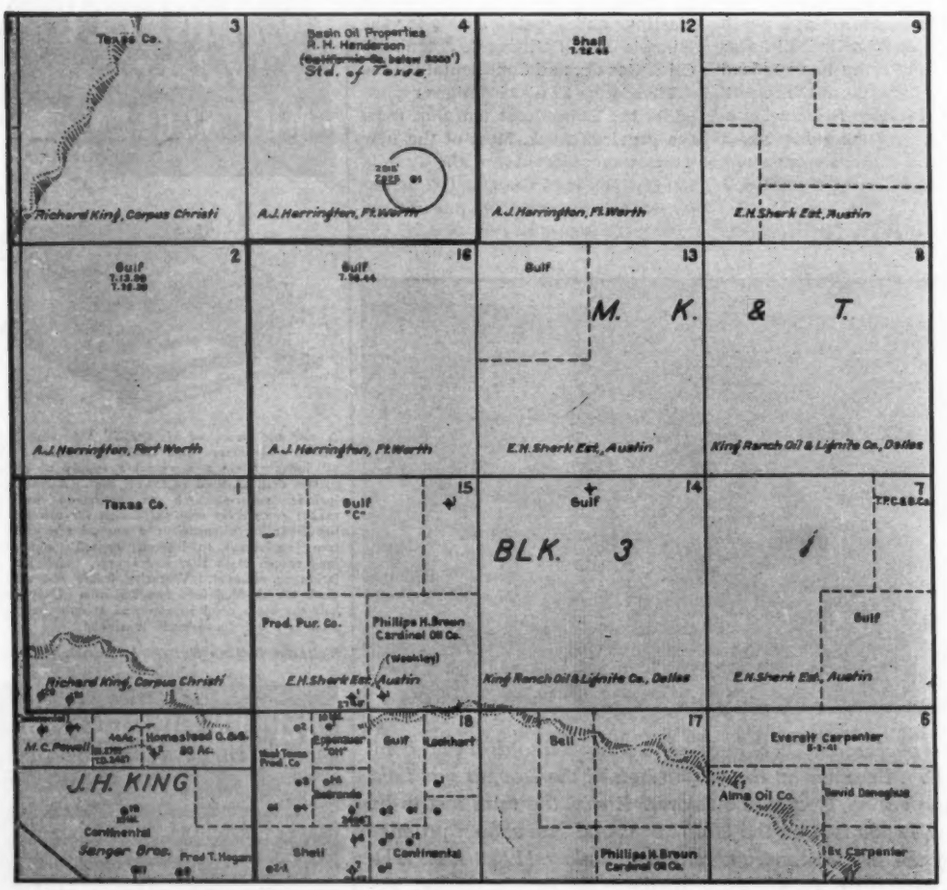
The Harper pool, near the center of the county, also received an outpost location, announced by L. H. Wentz for the NE quarter of section 28, Block 44, Township 2s, T.&P. Survey, about 2 miles southwest of production and about the same distance south of a dry hole drilled five years ago by Broderick & Calvert, and 1¾ miles north of another dry hole in section 33, several years ago.

Landreth Oil Corp. broadened the Cummins area a half mile east when No. 1-A Cummins in the SW quarter of section 10, Block A, P.S.L. Survey, plugged back to 4,230 feet from 4,238 feet and produced 155 bbls. of oil in 24 hours while plugging back and testing. This extension is on the northeast side of the Goldsmith-Cummins field in which extensions have been made rapidly during the past three months as the fields were connected by producing wells, which also tie in the Scharbauer area making one large field out of the three.

Another extension was made by Sun Oil Co. on its Holt lease in section 20, Block 43, Township 1n, T.&P. Survey. No. 1-C Holt, about one-half mile northeast of production, was shot with 700 quarts at total depth of 4,310 feet, flowing wild a short time, but gauging 80 bbls. the first hour. Ector County is the busiest county in the basin with 105 rigs running and preparing to start.

Dawson Well Development

Dawson County's lone discovery and producer, Ray Albaugh and others No. 1 John Robinson, in section 46, Block M, E.L.R.R. Survey, northwestern part of the county, which first showed for a small producer in December, and was shot in April with 100 quarts, which



Discovery 2½ miles north of production in McCamey field, Upton County

increased production but little, has been acidized with 2,000 gallons and pumped 37 bbls. in four and one-half hours, without pumping off. It may be given another dose. Total depth is 5,035 feet.

Reagan County

The northwest corner of Reagan County received an abandonment when Bahan & Rhodes gave up No. 1 TXL ranch in section 37, Block 37, Township 5s, T.&P. Survey, at total depth of 3,670 feet when it encountered a hole full of sulfur water. Another wildcat location was staked in the southwestern part of the county. Moore Brothers made it on University lands in section 8, Block 7, 1½ miles southwest of the Skelly-Utah pool. It is to go to 3,100 feet, and is on a block of 800 acres.

Mitchell Wildcat

Grisham-Hunter, Inc., of Abilene have staked wildcat location in western Mitchell County about 2 miles north of Iatan and the same distance east of a dry hole drilled a couple of years ago. It is on the Morrison lands in section 34, Block 29, Township 1n, T.&P. Survey. One other wildcat is now drilling.

WEST CENTRAL AND NORTH TEXAS

N. D. Gallagher and O. G. Lawson and others have spudded in their 5,500-foot test in the old Desdemona field in northeastern Comanche County to test all Ordovician sections and into the Cambrian and possibly the pre-Cambrian series. It will be drilled with cable tools and is on a block of 2,000 acres in the old field in the common corners of Eastland, Erath and Comanche counties, from which production has been coming for nearly 20 years. It is on the N. H. Kuykendall Survey and on the Mrs. B. I. Ferry lands.

Shackelford Discovery

Baker Oils, Inc., of Wichita Falls, have opened a new Bluff Creek sand field for Shackelford County in No. 1 G. R. Davis, section 48, Block 14, T.&P. Survey, in the southwestern part of the county and at least 10 miles from production. It topped the pay at 1,548 feet and shut down at 1,571 feet to shoot with 40 quarts. It is estimated good for 40 bbls. per day after cleaning out.

John H. Sedwick of Albany and the Hammond Oil Co. of Fort Worth have spudded a wildcat on the Dawson-Conway lands in the northwestern part of Shackelford County, in section 173, E.T.R.R. Survey. It is to be drilled to 1,800 feet.

Ordovician Abandonment

The eastern side of Shackelford County had its fifth abandonment in trying for production from the Ellenberger lime. Ungren & Frazier have given up No. 1 C. B. Snyder, section 26, L. A. Lands, 3 miles southwest of Sedwick. It topped Ellenberger at 4,340 feet and was plugged at 4,427 feet.

Central Callahan County is to get a 2,000-foot wildcat when J. C. Jackson spuds in No. 1 Thompson in section 30, B.B.B.&C. Survey, 2 miles south of Eula, and 18 miles southeast of Baird.

Wilbarger Activities

Two more good wells were completed from the 3,060-foot Landreth lime pay horizon in the Rock Crossing pool on the Waggoner lands in Wilbarger County, and another deep test in the shallow producing area in the Greyback pool, about 3 miles east of the deeper wells, is showing for a producer from a still deeper horizon in the lime, which may lead to deeper drilling than anticipated when Phillips Petroleum Co.'s deep well in section 44, Block 4, H.&T.C. Survey, came in for a good well in the lime at 3,071 feet three months ago.

This deeper test, W. W. McDonald and others No. 3-A W. T. Waggoner, in the NE cor. section 26, Block 4, H.&T.C. Survey, picked up deeper saturation at 3,560 feet, drilling to 3,577 feet and showing sufficient oil to warrant running a string of pipe and make a test. It topped the Lower Canyon at 3,553 feet with an elevation of 1,132 feet, and a test will be made this week. The test passed up the higher deep pay at 3,040-57 feet and 3,079-84 feet. It may give the area another pay horizon, the eleventh, also extending deep production and opening a deeper drilling campaign in the Greyback pool similar to that in the Rock Crossing pool 3 miles northwest.

Five miles northwest of Olney in Archer County, H. M. Tebay and others No. 1 Richardson, in the J. Scott Survey, is showing for a new lime discovery. It logged top of the lime at 1,209 feet and encountered a showing of oil in lime at 1,214 feet and free oil at 1,216 feet. Drilling to 1,240 feet it went into water sand and had to be plugged back to 1,225 feet to set casing and shoot or acidize, or both. The nearest production is within 3,500 feet, and comes from a sand pay, the nearest lime production being about 5 miles distant.

Denton County

In the Bolivar area, recently opened by A. A. Lander on the Forrester farm in the Barroux Survey, disappointments have been reported nearly every week since the small shallow discovery was made several weeks ago. Bolivar Refining Co. abandoned No. 1 Bentley, in the Yoachum Survey, about 2 miles southeast of the discovery, at 2,200 feet and the derrick was moved to a location north of the depleted and abandoned gasser on the Knox lands brought in before the Lander oil discovery. Five miles south of the Lander discovery, George Greer and others abandoned No. 1 T. M. Ross, in the J. C. P. Melton Survey, at 2,172 feet. The pool will be a small one.

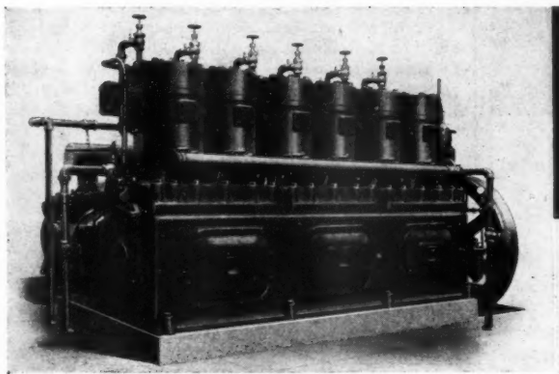
In the northeastern part of Denton County, Moore and Manning of Dallas are preparing to drill their second test 4 miles southeast of Pilot Point. It will be carried as No. 1 D. Ratchford, and is in the Isaac Walters Survey, preparing to go to 2,100 feet. Their former test was on the E. L. Darnell lands, same survey, and was given up at 2,513 feet. They have a block of 3,000 acres.

Stonewall Test

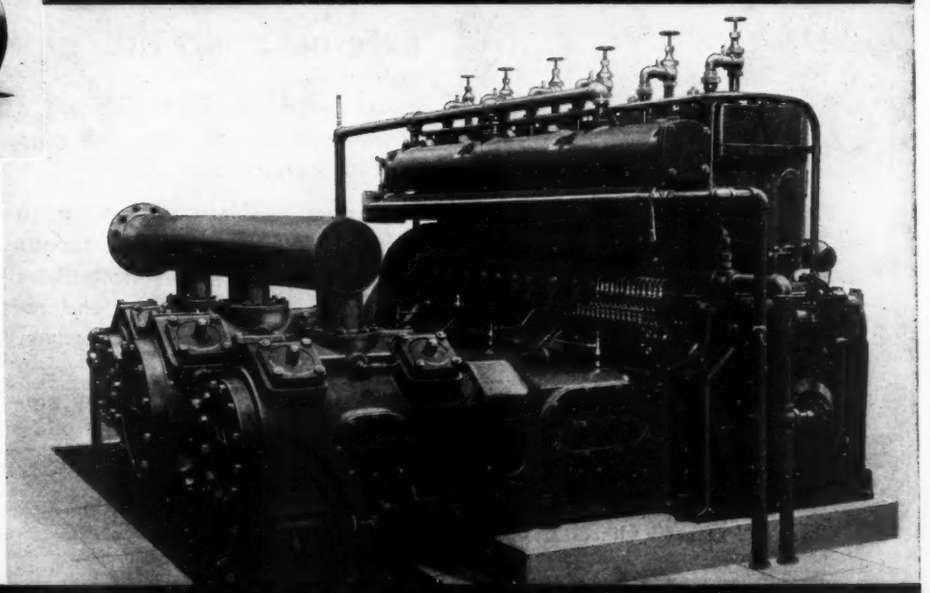
General Crude Oil Co. of Houston (Pew interests) are to drill a wildcat about 11 miles southeast of Aspermont and about 6 miles north of production in Fisher County (Royston pool) in which the company has considerable holdings. It will be on the W. J. Bryan ranch in section 10, William Vardeman Survey, north of a dry hole abandoned by Barnsdall Oil Co. last year.

Jack County Deal

Senator Garvin of Oklahoma has purchased lease on



THE WORTHINGTON ANGLE GAS ENGINE COMPRESSOR



Type LCE

• Compact
• Accessible
• Flexible

Sizes: 75-hp., 150-hp., 225-hp., 300-hp.

Literature on request

WORTHINGTON PUMP AND MACHINERY CORPORATION

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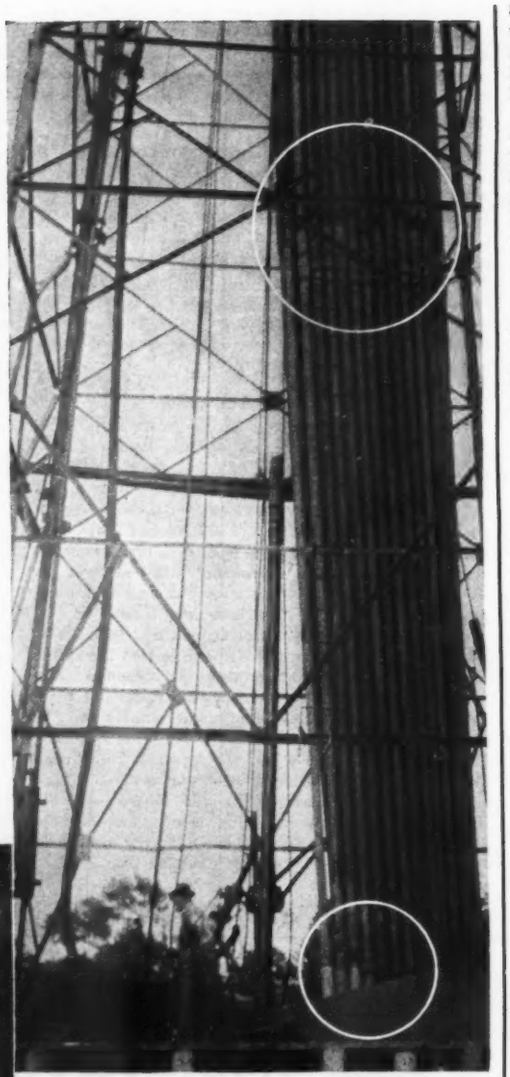
WORTHINGTON

Drilled 7 Wells and still going strong

In the Rodessa field, Patterson-Ballagh Protectors are accepted as standard equipment for the majority of drilling wells. The photos show installation on external upset drill pipe that has given service in seven wells during the past year and now in the eighth well.



Longer life to external upset drill pipe

Patterson-Ballagh Protectors are a necessity on external upset drill pipe for 100% protection.

They offer maximum protection to surface casing. Whipping of surface casing all too frequently necessitates pulling of casing, resetting and recementing—an expensive procedure. Patterson-Ballagh Protectors repay their initial cost many times by protecting surface casing.

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Plant and General Offices: 1900 E. 65th St., Los Angeles, Calif., U. S. A.
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PATTERSON-BALLAGH PROTECTORS

Drill Pipe & Casing

312 acres northwest of Bryson in Jack County and near the Young County line and is preparing to drill 10 wells if the first test, ready to spud, proves a producer. The leases are on the M. K. Graham, B. F. Manley, D. F. Leffel and W. A. Daugherty lands in T.E.&L. Survey.

Another 3,500-foot wildcat contract for Jack County has been made by E. Van Eman and W. M. Richards, who are to drill on the C. L. Whitsett lands in the W. M. McElroy Survey, about 16 miles northwest of Jacksboro and 3 miles northwest of a wildcat now being drilled by Roy Westbrook of Fort Worth. The operators have a block of 2,700 acres.

PANHANDLE DISTRICT

The Panhandle district will probably see the drilling of a 5,500-foot wildcat within six months in one of its nonproducing counties. C. O. McMillan of Houston, is assembling a block of 20,000 acres southwest of Canyon in Randall County, contracts calling for a test within that time.

WEST CENTRAL TEXAS COMPLETIONS

Shackelford County

W. E. Butler No. 1 G. R. Davis, 1,500-14 feet, total depth 1,632 feet, plugged back 1,514 feet, shot 15 quarts, 33 bbls. Groover & Rose and others No. 1 Nail, 1,604 feet, dry and abandoned. Charter Oil & Gas Co. and others No. 1 Davis, 1,612-23 feet, 115 bbls. Owens Snebold Oil Corp. No. 2 Ivey, 1,933-41 feet, treated 2,000 gallons, 350 bbls. Roeser & Pendleton No. 27 Dawson & Conway, 1,585-1,603 feet, 40 bbls.; No. 28 Dawson & Conway, 1,613 feet, dry and abandoned.; No. 29 Dawson & Conway, 1,597-1,605 feet, 85 bbls. Ungren & Frazier and others No. 1 Jackson J, total depth 1,247 feet, dry and abandoned; No. 1 Snyder, 3 miles southwest of Sedwick, top Ellenburger 4,340 feet, total depth 4,427 feet, dry and abandoned.

NORTH TEXAS COMPLETIONS

Archer County

George Proctor No. 1 W. Kuhr, 2,302 feet, dry. Underwood Drilling Co. No. 2 R. D. Andrews A, 957 feet, dry.

Cooke County

F. W. Merrick, Inc., No. 37 Knabe, 741-91 feet, 15 bbls. A. D. Robinson No. 6 J. H. Otto A, 789-872 feet, 20 bbls. Seitz Comegys & Seitz No. 2 J. W. Mount, 1,521-50 feet, 50 bbls. Sinclair Prairie Oil Co. No. 2 J. W. Hess, 808-38 feet, 15 bbls. Vindicator Oil Co. No. 13 J. Walterscheid, 768-76 feet, 10 bbls

Grayson County

Olson Drilling Co. No. 1 D. R. Utiger, 6,004 feet, dry.

Jack County

F. W. Bennett Petroleum Co. No. 2 Jones, 3,050-80 feet, 57 bbls. Big 6 Oil Co. No. 1 J. S. Callis, 3,506 feet, dry. Carpenter Oil Co. No. 1 W. Hanna, 503 feet, dry. Cato Oil Co. No. 5 Raley B, 3,085-3,133 feet, 225 bbls. Hanlon-Buchanan, Inc., No. 1 E. M. Sampley, 3,040-54 feet, 300 bbls. Hill & Hill No. 3 C.R.I.&G., 2,889-3,040 feet, 375 bbls. J. Korp No. 3 F. C. Bloodworth, 300 feet, dry. Lake & Thackston No. 1 Mrs. T. S. Hedrick, 707 feet, dry. Martex Oil Co. No. 9 Chambers, 2,911-33 feet, 175 bbls. Moncrief & Showers No. 1 S. M. Jones, 3,015-3,200 feet, 330 bbls. Panhandle Refining Co. No. 6 M. B. Cooke, 2,936-58 feet, 70 bbls. Perry & Woody No. 1 J. A. Raley B, 2,956-77 feet, 400 bbls.; No. 4 J. A. Raley B, 2,927-48 feet, 400 bbls. Vaughn Petroleum Co. No. 1 W. M. Simpson, 2,897-3,027 feet, 6,500,000 feet of gas. Yortex Petroleum Co. & States No. 3 Clayton A, 2,971-3,005 feet, 275 bbls.

Montague County

Continental Oil Co. No. 34 N. J. Howard, 1,200-25 feet, 25 bbls. Gibson & Jennings, Inc., No. 1 J. G. Howard, 3,003 feet, dry. Lesh & McCall No. 16 R. W. Cunningham A, 903-39 feet, 50 bbls.; No. 1 G. B. Heaton, 1,842 feet, dry.

Throckmorton County

Canyon Oil & Gas Co. No. 1 G. C. Wright and others A, 597 feet, dry.

Wichita County

J. W. Akin, Jr., No. 1 Frankel and others, 2,009 feet, dry. Bridwell Oil Co. No. 1 George A, 965 feet, dry. G. W. Cooper No. 20 Waggoner C, 1,612-25 feet, 250 bbls. Culbertson Co. No. 84 Waggoner, 689 feet, dry. Deep Oil Development Co. No. 9 Munger A, 3,675-3,878 feet,

350 bbls. Perkins & Cullum No. 26 Burnett, 1,349-65 feet, 35 bbls.

Wilbarger County

Consolidated Oil Co. No. 1 W. T. Waggoner BB, 1,927-35 feet, 35 bbls. Gibson & Jennings No. 1 Waggoner, 1,619-1,704 feet, 60 bbls. Phillips Petroleum Co. No. 193 Waggoner Ranch, 3,051-72 feet, 750 bbls.

Young County

Cable Oil Co. No. 7 Snider, 615-17 feet, 5 bbls. Duncan & Marchman No. 1 Jeffery, 1,035 feet, dry. Horwitz & Oldhom No. 7 F. C. Green, 722-25 feet, 5 bbls. Johnson & Mitchell No. 1 C. J. Taack, 691 feet, dry. Kenyon and others No. 1 J. W. Daws, 1,801 feet, dry. Knight Oil Corp. No. 1 G. B. Hamilton, 857 feet, 25 bbls. J. W. Lane No. 1 Rogers, 988 feet, dry. W. S. Langford No. 1 B. N. Woolfork, 750 feet, dry. Stuckey Oil & Gas Co. No. 1 Howard, 760 feet, dry. Welch & Crenshaw No. 1 Street, 3,380-3,460 feet, 50 bbls.

PANHANDLE COMPLETIONS

Carson County

Empire Oil & Refining Co. No. 5 Deahl, 2,328-2,590 feet, 18,000,000 feet gas. Northern Oil Co. No. 4 Cooper, 3,034-3,156 feet, 708 bbls. on pump. Texoma Natural Gas Co. No. 1-E Talley-Baird, 2,574-2,799 feet, 20,300,000 feet gas.

Gray County

Cree & Hoover No. 1 Melton, 2,805-3,201 feet, plugged back to 2,960 feet, 13,600,000 feet gas. Danciger Oil & Refining Co. No. 12 Barrett, 3,250-3,300 feet, 529 bbls. on pump, shot. Doniphan Oil & Gas Co. No. 4 Cobb, 3,280-3,331 feet, 335 bbls. on pump, shot. Magnolia Petroleum Co. No. 6 Sailor, 3,165-3,225 feet, 559 bbls. on pump, shot. Sinclair Prairie Oil Co. No. 4 Coomley, 3,080-3,200 feet, 475 bbls. on pump, shot.

Hutchinson County

Phillips Petroleum Co. No. 5 Timms, 3,095-3,163 feet, 511 bbls. on pump, shot. Stanolind Oil & Gas Co. No. 1-B Halle, 3,000-62 feet, 230 bbls. on pump, shot; No. 2 Watkins, 2,805-2,870 feet, shot, 292 bbls. on pump.

Moore County

Texoma Natural Gas Co. No. 11-SN Sneed, 2,743-3,045 feet, 49,700,000 feet gas.

Wheeler County

Smith Brothers No. 8 Johnson, 2,553 feet, 20 bbls. in one month.

WEST TEXAS COMPLETIONS

Andrews County

Humble Oil & Refining Co. No. 19 Means, 3,420-4,532 feet, 534 bbls.

Crane County

Fields and others No. 5 Gibbs, 2,263-74 feet, acidized, 721 bbls. Gulf Oil Corp. No. 4 Waddell and others, 5,939-6,014 feet, 512 bbls. in six hours through three-fourths inch choke; No. 17 Waddell, 3,470-3,517 feet, acidized, 4,367 bbls. in six hours. Humble Oil & Refining Co. No. 9 Tubbs, 4,290-4,437 feet, acidized and shot, 458 bbls. Magnolia Petroleum Co. No. 9 Edwards, 3,500-55 feet, acidized, 925 bbls. per hour. Shell Petroleum Corp. No. 1-A TXL Ranch, 4,160-4,254 feet, acidized, 688 bbls.

Ector County

Bond & Harrison No. 2 Rumsey, 4,160-4,240 feet, acidized and shot, 1,312 bbls. Atlantic Refining Co. No. 4 Cowden, 4,160-4,250 feet, shot, 375 bbls.; No. 1-C Blakeney, 4,140-4,250 feet, acidized and shot, 38 bbls. Landreth Oil Corp. No. 2-G Scharbauer, 4,163-4,220 feet, acidized, 1,100 bbls. Devonian Oil Co. No. 2-A Scharbauer, 4,158-4,230 feet, acidized, 287 bbls. Shasta Oil Co. No. 1-B Scharbauer, 4,165-4,238 feet, acidized, 1,368 bbls.; No. 3-B Scharbauer, 4,154-4,226 feet, acidized, 982 bbls. Humble Oil & Refining Co. No. 4 Cowden, 4,114-4,267 feet, acidized, 378 bbls.; No. 1 McKenzie, 3,500-3,650 feet, shot and acidized, 201 bbls. I.T.I.O. No. 1 Johnson, 4,080-4,200 feet, shot, 600 bbls. Stanolind Oil & Gas Co. No. 3-B Cowden, 4,040-4,178 feet, shot, 365 bbls.; No. 42 Cowden, 4,050-4,280 feet, shot, 1,667 bbls.

Upton County

Basin Oil Properties No. 1-B Baker, 2,265-2,335 feet, 1,121 bbls. Continental Oil Co. No. 8 Reese, 2,430-2,461 feet, acidized, 982 bbls.; No. 7 Reese, 2,530-2,650 feet, acidized, 1,045 bbls.; No. 6 Reese, 2,440-51 feet, acidized, 733 bbls. Choate & Hogan No. 2 Baker, 2,225-2,307 feet, acidized, 878 bbls. Gulf Oil Corp. No. 5 Rodgers, 2,287-94 feet, acidized, 249 bbls.

Howard County

Pure Oil Co. No. 1 Chalk, 3,202 feet, acidized, 594 bbls. Continental Oil Co. No. 1-C Chalk, 3,210 feet, acidized, 636 bbls.

Schleicher County

Homestead Oil Co. No. 1 Judkins and Spencer, dry and abandoned, 6,527 feet, elevation 2,209 feet.

Ward County

A. Bradford and others No. 1 Carson, junked and abandoned, 2,375 feet. Tex-Mex Petroleum Corp. No. 8 Pure-Smith, 2,430 feet, shot, 600 bbls. Provine and others No. 1 Tubbs, 2,148-91 feet, 45 bbls. Sinclair Prairie Oil Co. No. 8 Archenhold, 2,875-3,060 feet, acidized, 378 bbls. Hanna & Case No. 1 White, 2,537-60 feet, shot, 170 bbls. oil and 18 bbls. water. Pat Hill No. 13 Clements, 2,180-2,300 feet, shot, 250 bbls. Standard of Texas No. 29 York, 2,380-2,525 feet, shot, 25 bbls. Rio Bravo Oil Co. No. 21 Alcott, 2,280-2,523 feet, shot, 2,266 bbls. Tide Water Associated No. 17 Johnson 2,554-2,674 feet, shot, 5,486 bbls.; No. 20 Johnson, 2,585-2,705 feet, shot, 4,184 bbls. Gulf Oil Corp. No. 74 Hutchins, 2,528-2,767 feet, shot, 103 bbls. Humble Oil & Refining Co. No. 14-F University, 2,586-2,753 feet, shot, 824 bbls. Moran and others No. 1 Reynolds, junked and abandoned 850 feet.

Winkler County

Amerada Petroleum Corp. No. 2-A Cowden, 3,030 feet, shot, 436 bbls. Siosi Oil Co. No. 9 Lovett, 2,765-3,140 feet, shot, 298 bbls. Sinclair Prairie Oil Co. No. 2-B Vaden, 2,800-3,070 feet, 808 bbls. Humble Oil & Refining Co. No. 16-A Colby, 2,808-3,026 feet, shot, 569 bbls.; No. 10 Howe, 2,794-3,010 feet, shot, 1,577 bbls. Tide Water Associated No. 15 Walton, 2,853-3,135 feet, shot, 899 bbls. Magnolia Petroleum Co. No. 70 Walton, 2,810-2,916 feet, shot, 579 bbls. through seven-eighths inch choke; No. 74 Walton, 2,789-2,916 feet, shot, 520 bbls. through seven-eighths inch choke; No. 76 Walton, 2,815-2,925 feet, shot, 1,020 bbls. through seven-eighths inch choke. Gulf Oil Corp. No. 34 Daugherty, 2,795-3,125 feet, shot, 853 bbls.; No. 33 Daugherty, 2,803-3,138 feet, shot, 593 bbls.; No. 37 Daugherty, 2,810-3,020 feet, shot, 574 bbls.; No. 39 Daugherty, 2,813-3,020 feet, shot, 963 bbls.

Michigan Fields

(Continued from Page 144)

Consumers No. 1 Baker and others, C NE section 6-9n-14w, drilled to about 1,250 feet by Lentz & Miller, Inc.

John B. Northcott resumed drilling the former E. C. Nelson, Inc., No. 1 Williams, NE NE NE section 8-14n-16w, Ferry Township, Oceana County, which had been shut down for two years.

Montcalm County contributed three of Michigan's six dry holes as three wildcat tests in as many townships were plugged and abandoned.

Eastern Fields

(Continued from Page 130)

Comas district at 3,462 feet. Big lime was at 1,482-1,651 feet; Big Injun, 1,778-95 feet; Berea, 2,260-72 feet; Brown shale, 2,720-3,452 feet with 82,000 feet of gas at 2,720-3,452 feet. There was no test on the Berea gas.

In Braxton County, Pittsburgh and West Virginia Gas Co. completed a test on the John Hall farm in Birch district as a gas well at 1,620 feet. Salt sand was at 1,608 feet with gas from 1,608-19 feet and a gauge of 150,000 feet.

In Gilmer County, Massey & Jarvis Drilling Co. completed a test on the Carl McGinnis farm in Glenville Independent district in the Maxton sand at 1,245 feet, gauging 500,000 feet. Carnegie Natural Gas Co. completed a test on the Lee Jarvis farm in the Injun sand at 1,580 feet, gauging 630,000 feet. Pittsburgh and West Virginia Gas Co. completed a test on the S. A. Hays farm in the Third sand at 1,332 feet, showing for 10 bbls. In DeKalb district, Oil City Trust Co. drilled No. 5 O. C. and T. C. McQuain through the Berea sand to 2,600 feet and it was dry.

In Marion County, South Penn Oil Co. completed a test on the C. A. Prichard farm in Lincoln district in the Gordon sand, total depth 2,993 feet, gauging 150,000 feet.

In Pleasants County, F. L. Gammage completed a test on the Ed Wells farm in Grant district in the Injun sand at 1,980 feet as a small gas well. C. L. Barron drilled No. 4 J. H. Roberts through the Horse Neck sand to 750 feet and it was dry.

In Tyler County, Thomas King and others completed a test on the Otto Ash farm in Meade district in the Salt sand at 1,107 feet, gauging 200,000 feet.

In Wetzel County, C. B. Lewis and others completed a test on the James Gilbert farm in Proctor district at 2,161 feet. Maxton sand was topped at 2,109 feet with 79,000 feet of gas at 2,141-48 feet.

Outside Deep Tests

In Hancock County, John T. Galey has resumed drilling the deep test on the Rachel Talbott farm in Grant district and reached 4,936 feet or 184 feet in the Corniferous lime. The tools are expected in the Oriskany sand this week.

In Calhoun County, Godfrey L. Cabot, Inc., has reached 6,166 feet on the Allen Hardman farm in Center district or 172 feet in the Corniferous lime. The hole is cased in the lime at 6,022½ feet.

In Jackson County, United Carbon Co. has started drilling on the Elizabeth Ward Perkins farm in Washington district and is building a rig for No. 2. In Kanawha County, this company is down 2,370 feet on the J. A. and M. F. Osborne farm.

In Wirt County, Godfrey L. Cabot, Inc., is fishing at 5,370 feet on the Walter Huffman farm on the Burning Springs anticline. Carnegie Natural Gas Co. remains shut down in the deep test on the W. C. Patterson farm testing the shale oil.

New Work

In Boone County, Owens-Illinois Glass Co. has a location for No. 18 Little Coal Land Co. in Washington district. In Scott district, this company will drill No. 22 Allen and Pryor.

In Braxton County, Pittsburgh and West Virginia Gas Co. has a location for No. 7 Parkersburg Mill Co., also No. 4 G. B. Howell, and No. 4 Ramsey and Bender leases, all in Birch district.

In Calhoun County, Godfrey L. Cabot, Inc., has a location on the farm 66 acres in fee in Sherman district. The elevation is 1,219.5 feet. In Lee district, Lyle S. Ayers has reached 2,000 feet on the H. G. Brannon farm.

In Kanawha County, Owens-Illinois Glass Co. has a location for No. 3 Siler Coal Land Co. in Washington district. In Elk district, Linden Drilling Co. has a location on the S. D. Robinson farm. Elevation is 775.53 feet.

In Lincoln County, Blue Ridge Gas Co. has a permit on the C. E. Wilkerson farm in Carroll district. In Ritchie County, Eastern Producing & Refining Co. has a location for No. 26 L. C. Stephens in Grant district. In Roane County, South Penn Oil Co. has a location for J. W. Conley in Reedy district. In Wayne County, Southeastern Gas Co. has a location on the Frank Marcum farm in Lincoln district.

Kansas Fields

(Continued from Page 143)

anhydrite at 1,145 feet. Topeka lime 3,262 feet, Kansas City lime 3,700 feet, Chat 4,263 feet, had Siliceous lime at 4,480-4,523 feet, total depth, and was dry and abandoned.

Trego County

Watchorn Oil & Gas Co. and others No 1 Wilson, NW NE NW section 22-11-23w, Trego County, set 10-inch casing at 111 feet and was waiting on cement.

Stafford County

Lario Oil & Gas Co. and Atlantic Refining Co. No. 3 Morgan, C S half W half SE section 23-24-13w, St. John pool, Stafford County, topped Siliceous lime at 4,105 feet, total depth 4,131 feet, plugged back ot 4,124 feet and made potential of 795 bbls. of oil, with 20 per cent water, in 21 hours.

Empire Oil & Refining Co. No. 2 Benton, SW cor. section 23-24-13w, was moving in material for a new Stafford County test. Same operator's No. 1 Stimatze, NW NW SW section 15-25-14w, was a location.

Greenwood County

C. C. Hubbard No. 1-A Pinon, C W half W half NE section 27-23-13, Greenwood County, was moving in material. Youker & Davis No. 1-A Olson, SE SE NW section 28-26-9, was a machine.

Oklahoma Operations

By DAL DALRYMPLE

BIG GAS WELL AT LANGSTON; SOUTH LUCIEN IS EXTENDED

The Langston field in Logan County was extended one-half mile northeast at Ohio Oil Co. No. 1 Knight, SE NE SW section 12-17-1w, a gas well. When opened Sunday it produced 40,000,000 feet of gas daily, with no oil showing. It found Wilcox sand at 5,032 feet, total depth 5,055½ feet in sand, and ran from 25 to 30 feet higher than Eason Oil Co.'s gusher in section 13-17-1w, which revived activity in the old area several weeks ago. Operators believe the new well is on top of the structure, and it is probable another test for oil will be drilled west of the gasser.

Eason Oil Co. No. 1 Sisters, SW cor. section 24-17-1w, south of Langston, had nothing showing at 5,563 feet in Wilcox sand, and was to run Schlumberger survey.

Extension of the Moore field, Cleveland County, one-fourth mile northeast, appeared imminent at Phillips Petroleum Co. and others No. 1 Oklahoma, SW SE SE section 16-10-2w. It made one head of 234 bbls. of oil, 230 bbls. being load-oil, flooded the separator and was shut in. Operators planned to deepen from 7,220 feet in Dolomite to Wilcox sand. It is along the east side fault in the pool and may determine a trend in that sector.

The south end of the Lucien field in Logan County was extended one location south at Phillips Petroleum Co. No. 3 Pfeiffer, SW NW NE section 4-19-2w. It flowed at the rate of 60 to 70 bbls. of oil an hour while drilling at 4,978 feet in second Wilcox sand.

Work was under way at a second well in the Rossanna area, recently opened in Seminole County, southwest of the Cromwell field. It was Sinclair Prairie Oil Co. No. 1 Miles, NE NE SE section 29-10-8, offsetting the discovery well on the west. It was drilling below 500 feet. The discovery well, Sinclair Prairie No. 1 Rossanna, NW NW SW section 28-10-8, was averaging more than 1,000 bbls. of oil daily.

Pontotoc County

J. Paul Getty No. 4 Masters, SW SE NW section 23-2n-7, Fitts field, Pontotoc County, topped Hunton lime at 3,773 feet, total depth, flowed 484 bbls. of oil in one hour through casing and made potential of 5,355 bbls. Same operator's No. 3 Masters, NW NW SE section 23-2-7, flowed 676 bbls. of oil in seven hours through casing and tubing, making potential of 2,596 bbls., cutting 6 per cent water. Top of Hunton lime was 3,751 feet; total depth, 3,894 feet.

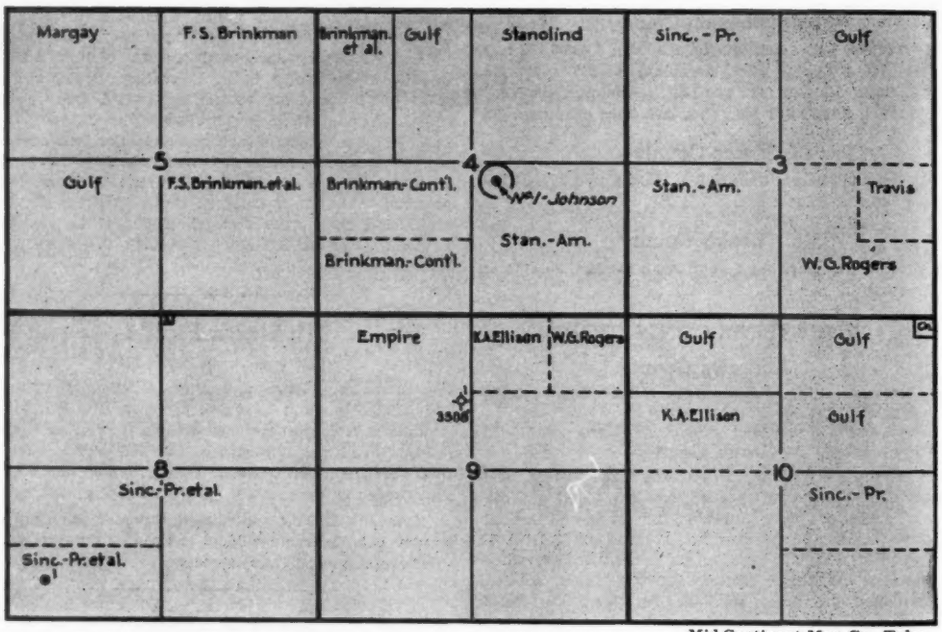
Magnolia Petroleum Co. No. 11 Norris, SE NW SE section 21-2-7, found Hunton lime at 3,600 feet; Sylvan shale 3,926 feet and was bottomed at 3,929 feet. After acid treatment, it flowed 520 bbls. of oil gross in one hour. Potential rating was 3,454 bbls.

E. H. Moore No. 13 Akers, NE NW NE section 36-2-6, topped Hunton lime at 3,428 feet; Sylvan shale 3,710 feet; total depth 3,715 feet; it flowed 17 bbls. of oil in two hours on gas lift; was acidized and made potential of 3,346 bbls. Same operator's No. 3-B Woodruff, NE NW SE section 29-2-7, found Cromwell sand at 2,410 feet, was bottomed at 2,560 feet, and flowed 72 bbls. of oil in 12 hours through tubing. Same operator's No. 7-A Schauers, SE SE NW section 29-2-7, topped Cromwell sand at 2,500 feet, total depth 2,660 feet and flowed 51 bbls. of oil through tubing in 24 hours.

Fleetborn & Simpson No. 7-A Woolley, SE NE SE section 28-2-7, flowed 268 bbls. of oil gross through tubing in two hours after acidizing, making potential of 1,189 bbls. of oil. Top of Hunton lime was 3,213 feet; Sylvan shale 3,491 feet; total depth 3,494 feet. Bishop Oil Co. No. 2-A Simpson, SE NW NW section 28-2-7, had Cromwell sand at 2,455 feet, total depth 2,600 feet, and flowed 240 bbls. of oil through choke in 24 hours. Carter Oil Co. No. 13 Smith, SW NW SW section 28-2-7, twin well, topped Hunton lime at 3,243 feet; Sylvan shale 3,513 feet; total depth 3,516 feet, was acidized and made potential of 137 bbls. of oil.

W. A. Delaney No. 1 Starrett, SW SE NE section 21-5-5, an old well, was treated with acid and pumped 108 bbls. net in 24 hours.

New work in Pontotoc County: Deep Rock Oil Corp. and Burke Greis Oil Co. No. 1 Garrett, NE NE SE section 3-1n-7, location; H. L. Blackstock and others No. 2 Thompson, SE NE NE section 4-1n-7, rig; E. H. Moore and others No. 1 Blackstock, NW NE NE section 4-1n-7, cellar and pits; same operator's No. 2 Blackstock, SW NE NE section 4-1n-7, location; Magnolia Petroleum Co. No. 2 Morin, SW NE SE section 20-2n-7, an old well, plugged back from 4,364 feet, 4,350 feet and then to 4,150 feet, shot and acidized, and flowed 517 bbls. of oil gross in one hour; Sinclair Prairie Oil Co. No. 18 Burris, SW NE NW section 27-2-7, building rig; Magnolia Petroleum Co. No. 15 D. Harden, NE NE NW section 30-2-7, cellar and pits; same company's No. 16 D. Harden, NW NE NW section 30-2-7, waiting on cement at 530 feet; E. H. Moore No. 3 Thompson, SW SE SE section 33-2-7, location; same operator's No. 1 Statler, SW cor. section 34-2-7, location; Campbell No. 2 Owensby, SE SW SW section 21-3-4, drilling at 130 feet; Benedum-Trees Oil Co. No. 3 Burke, SW NW NW section 33-5-5, cellar and pits.



Mid-Continent Map Co., Tulsa.

Stanolind Oil & Gas Co. and Amerada Petroleum Corp. have started a wildcat at No. 1 Johnson, section 10-17-11w, northeast of Lucien field, Noble County

Seminole County

A wildcat in southeastern Seminole County, northeast of Sasakwa townsite, was completed as a small oil producer. It was J. E. Hall and others No. 1 White, SE NW SE section 30-6-8. Senora sand, the producing horizon, was topped at 1,265 feet; Gilcrease sand 2,540 feet; a showing of oil was had at 2,597-2,600 feet, and at 2,600-10 feet, total depth. It swabbed 5 bbls. of fluid an hour, 75 per cent water, and was plugged back to 1,275 feet. After shooting it was completed as an 18-bbl. pumper.

A. I. Spears No. 1 Keaton, NW cor. section 6-5-8, wildcat southeast of Sasakwa townsite and north of the Allen district, topped Senora sand at 1,377 feet; lime 2,434 feet; Gilcrease 2,764 feet; Wapanucka 2,920 feet; Cromwell 3,033 feet, and was temporarily abandoned at 3,129 feet, total depth.

Magnolia Petroleum Co. No. 1 fee 64, NW NW SE section 24-5-5, Wetley pool, topped Hunton lime at 2,398 feet; Sylvan shale 2,599 feet; total depth 2,603 feet; swabbed 115 bbls. of oil in 18 hours; acidized and flowed 108 bbls. of oil net in 24 hours, through tubing.

First reports of new work in Seminole County: Magnolia Petroleum Co. No. 2 fee, NE NW SE section 24-5-5, rig; R. W. Simpson and C. W. Roodhouse No. 1 Stewart, SW cor. section 14-6-6, location; W. B. Pine No. 2 Williams, NE cor. section 22-6-6, location; Mudge Oil Co. No. 1-A Anders, SW NW NW section 23-6-6, cellar and pits; Paul Traugh No. 1 Anders, NW SW NW section 23-6-6, location; Wood Oil Co. No. 1 Mayhue, NE cor. section 14-9-6, an old well, plugging back to Booch sand; Sinclair Prairie Oil Co. No. 3 Raitman, SW SE NW section 18-9-6, an old well, plugged back from 4,206 feet to 3,340 feet, to rip casing; Rogers Oil & Gas Co. No. 2 Pilot, NW NE NW section 16-9-7, spudded; Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 McGill, SE SW SW section 35-11-5, rigging up rotary.

Okfuskee County

Four new producers were completed in the Olympic field, Okfuskee County. Manahan Oil Co. No. 19 Dalton, NW SE SW section 36-10-8, topped Senora sand at 1,720 feet, was bottomed at 1,729 feet, shot and pumped 108 bbls. of oil and 5 bbls. of water in 24 hours.

Ark Royalty Co. No. 1 Lehmar, NW NW SW section 17-10-9, found Senora sand at 1,870 feet, total depth 1,930 feet, shot, swabbed 37 bbls. of oil in 24 hours and pumped 26 bbls. in 24 hours. Same company's No. 4 Brooks, SW SE SW section 18-10-9, pumped 100 bbls. of oil and 30 bbls. of water in 24 hours after a shot. Top of Senora sand was 1,860 feet; total depth 1,902 feet.

Sinclair Prairie Oil Co. No. 10 Fisher, SE NW SW

ELECTRIC POWER for REDA PUMPS

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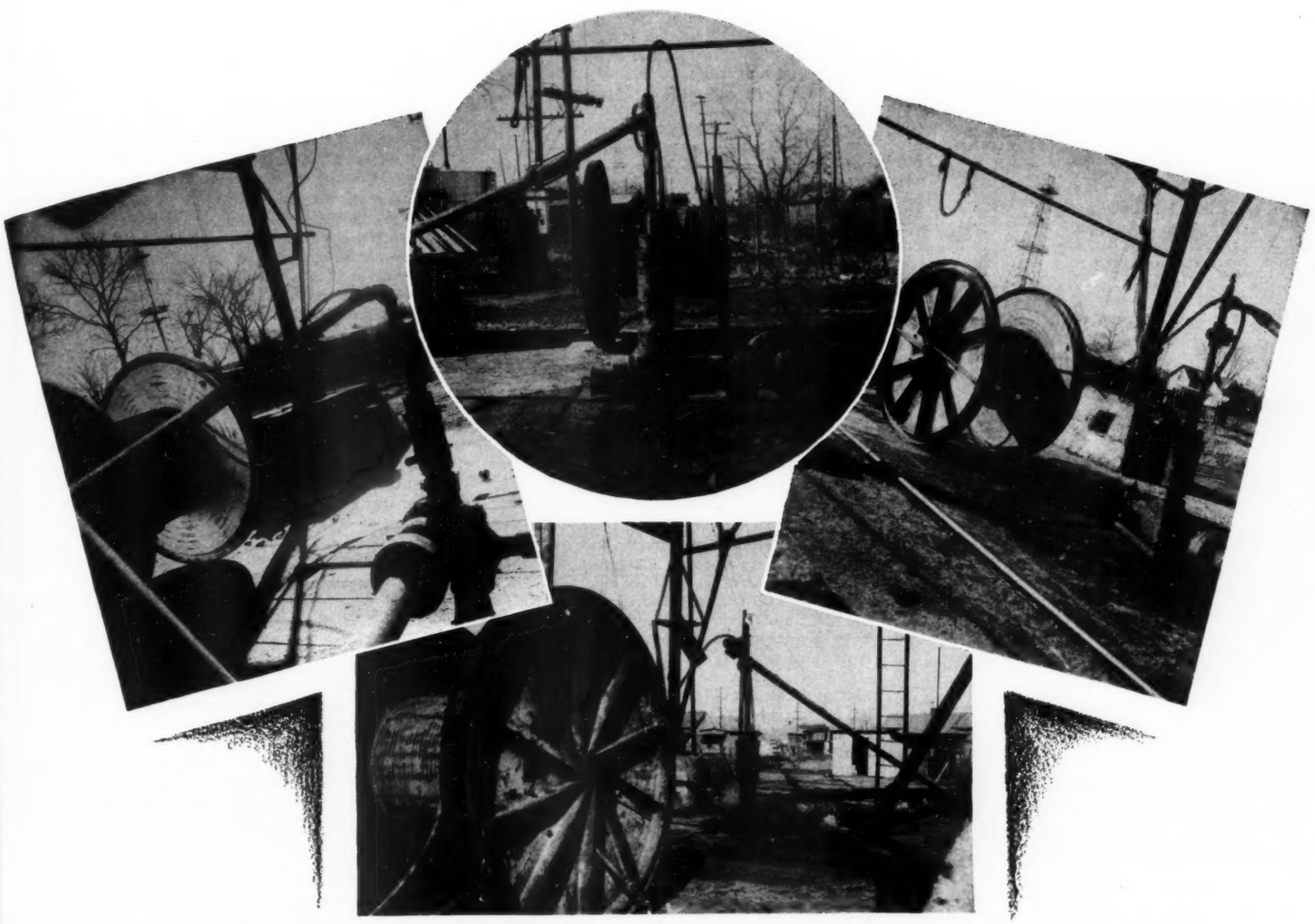


Here are typical examples of the many electrically powered Reda Pump installations which are being operated with great success every day. It has been proved time and again through actual performance that Reda Electric Pumps will obtain more oil, in less time, at the lowest net cost!

OKLAHOMA GAS AND ELECTRIC COMPANY

Commercial Department

OKLAHOMA CITY — W. H. STUEVE — OKLAHOMA

section 19-10-9, found Senora sand at 1,854 feet; total depth 1,896 feet, shot and swabbed 125 bbls. of oil in 24 hours.

Oklahoma Oil Corp. No. 1 Campbell, SE SE NE section 8-10-9, wildcat, had dry Senora sand at 1,786-1,810 feet, and was dry and abandoned at 1,860 feet, total depth.

Burke-Greis Oil Co. and others No. 1 Butler, SE SE NE section 19-10-10, an old well, was deepened from 2,980 feet to Cromwell sand at 3,212-55 feet, new total depth 3,259 feet, produced 6,000,000 feet of gas, recompleted.

A trio of new operations was reported in Okfuskee County. Blackwell Oil & Gas Co. and Phillips Petroleum Co. No. 4 Lehmar B, NE NW SW section 18-10-9, was drilling at 770 feet; Sinclair Prairie Oil Co. No. 11 Fisher, NW SE SW section 19-10-9, was a rig. Commercial Drillings Co. and others No. 2-A Replogle, NW NW NE NE section 26-12-11, an old well being deepened, was drilling at 3,375 feet.

Estimated Daily Production

Estimated daily average production of Oklahoma for the week ending May 15, and for the preceding week, was as follows:

	Barrels	
	May 15	May 8
Allen	6,000	5,959
Burbank	7,875	7,900
South Burbank	16,400	16,500
Balance Osage	22,150	22,250
Blackwell district	5,325	5,300
Bristow-Slick	7,825	7,775
Chandler	3,125	3,050
Crescent	12,900	12,600
Cromwell	3,550	3,600
Cushing-Shamrock	10,475	10,500
Duncan district	3,750	3,725
Edmond	21,000	18,375
Fish	5,850	5,925
Fitts	96,525	83,450
Jesse	5,000	2,950
Graham	4,725	4,700
Gray	1,300	1,225
Healdton	9,725	9,750
Hewitt	4,500	4,525
Holdenville	925	975
Keokuk	10,250	8,400
Lucien	14,250	14,300
Moore	12,225	12,050
Oklahoma City	169,700	173,300
Olympic	15,200	14,800
Papoose	925	900
Polo	1,575	1,525
Sasakwa and townsite	2,950	2,525
Sholem-Alechem	3,100	3,000
Seminole:		
Bowlegs	11,675	12,075
Carr City	5,825	6,075
Earlsboro	6,300	6,625
South Earlsboro	725	750
East Earlsboro	7,525	7,700
Little River	10,875	11,175
East Little River	1,100	1,075
Maud	775	825
Mission	2,075	2,000
Seminole	9,450	9,475
East Seminole	3,150	3,050
Searight	4,800	4,575
Total Seminole	64,275	65,400
St. Louis-Pearson	22,750	23,925
Tatums	5,025	5,100
Tonkawa-Garber-Thomas	9,975	10,000
Wewoka	3,300	3,200
Yale-Jennings	4,200	4,250
Other pools	72,025	71,450
Total Oklahoma	660,650	645,150

Oklahoma County

Largest of three producers completed in the Oklahoma City field, Oklahoma County, was Anderson-Kerr Drilling Co. No. 1-B Dawson, SE NW SE section 27-12-3w. It topped second Wilcox sand at 6,381 feet, total depth 6,538 feet, flowed 1,196 bbls. of oil in 24 hours; cleaned out and made potential of 1,619 bbls. of oil on Reda pump.

Bryan Petroleum Co. No. 1 Howe's Capitol, NE NW SE section 27-12-3w, found second Wilcox sand at 6,372 feet, was bottomed at 6,527 feet and made potential of 705 bbls. of oil.

Big Chief Drilling Co. No. 1 Stephens, SW NW SE section 15-12-3w, had Simpson Dense at 6,365 feet; first Wilcox sand 6,385 feet, second Wilcox sand 6,484 feet, total depth. Water intruded. It was plugged back to 6,450 feet, perforated casing, acidized and shot, and it flowed 100 bbls. of oil daily.

In the Britton district, Jones & Shelburne No. 1 Williams, SE SE SW section 20-13-3w, had Simpson Dense at 6,564 feet and was bottomed at 6,690 feet. It was shot and acidized and flowed 121 bbls. of oil in one hour, with 25 per cent basic sediment and water. It was reacidized, flowed 772 bbls. of oil in four hours, making potential of 4,632 bbls., cutting 2 per cent salt water.

Indian Territory Illuminating Oil Co. No. 2 Theimer, NW SW NE section 12-11-3w, an old well, was plugged back from 6,368 feet to 5,000 feet, casing was perforated and it flowed 2,612 bbls. of oil through open casing in 24 hours, with 2 per cent salt water. It also flowed 1,556 bbls. of oil in 24 hours through 1¾-inch choke, but was not a completion.

Osage County

Lewis Production Co. and Peters Petroleum Corp. No. 3 Drummond, NW SW SW section 27-24-7, Osage County, topped Bartlesville sand at 2,554 feet; total depth 2,644 feet; swabbed and flowed 40 bbls. of oil naturally, and flowed 286 bbls. in 24 hours after a shot.

Lewis Production Co. No. 2 Osage, SW NW NW section 34-24-7, was shot and flowed 151 bbls. of oil in 24 hours from Bartlesville sand topped at 2,600 feet; total depth 2,670 feet.

Tulsa-Osage Oil Co. No. 1 Osage, NW NW SE section 14-24-8, had a hole full of water and was dry and abandoned at 2,707 feet, total depth.

New work in Osage County: L. E. Mertz No. 7-A Osage, SE cor. section 8-21-9, rig; Lewis Production Co. No. 4 Osage, SW NW NE section 33-24-7, digging cellar; Coralena Oil Co. No. 3 Osage, NE NE SW section 21-25-6, location.

Noble County

Another large producer in the Billings pool, Noble county, was completed at Tide Water Oil Co. No. 1 Shaffer, NE NE SW section 21-23-2w. After topping Wilcox sand at 4,299 feet and stopping at 4,324 feet, total depth, it flowed 1,390 bbls. of oil in three hours and later made potential of 3,912 bbls. of oil, with 2,300,000 feet of gas.

Tide Water Oil Co. No. 6 Hackett, NW SW SE section 21-23-2w, was building rig. Same operator's No. 3 Shaffer, SE NE SW section 21-23-2w, was digging cellar.

Cleveland County

Sinclair Prairie Oil Co. and others No. 3 Bagby, SW SE NW section 27-10-2w, Moore pool, Cleveland County, flowed 2,424 bbls. of oil in four hours, making potential of 13,432 bbls. Gas averaged 23,125,000 feet. Production was from Simpson formation topped at 7,065 feet; total depth 7,314 feet.

Kay County

Clarke Nye and others No. 2-A McCullough, SW NW SE section 5-28-1w, Braman area, Kay County, topped Layton sand at 2,760 feet; total depth 2,806 feet; was shot and flowed 600 bbls. of oil in 24 hours, initially, and was completed flowing at the rate of 125 bbls. daily.

Tulsa County

Johnson Oil Refining Co. No. 1-B Lowder, NW NW SE section 31-19-10, Tulsa County, had Red Fork sand at 2,262 feet, total depth, 2,282 feet, was shot and swabbed 80 bbls. of oil in 24 hours.

Somerset Oil Co. No. 1 Depriest, NE SE NE section 35-17-12, an old well, was deepened from 1,930 feet to 2,350-54 feet, total depth, where water intruded, and it was abandoned.

New operations in Tulsa County included the following: Sheldon Brothers No. 2-A Donaldson, C S half NE NW section 13-18-12, drilling at 500 feet; Gilmore Oil Co. No. 1-A Covey, NE SW NW section 13-18-12, location; Johnson Oil Refining Co. No. 4 Bailey Grimes, NE NE SW section 31-19-10, moving in machine; Wheatley Brothers No. 1 fee, NE SE SE SE section 4-19-12, shut down at 1,000 feet; same operator's No. 2 fee, SE cor. section 4-19-12, drilling at 900 feet; C. L. Hester and others No. 1 Hodges, NE NW NE section 9-19-12, drilling at 575 feet.

A recent tabulation of the Tulsa Airport pool included 55 producing oil wells, 15 dry holes and 15 wells drilling.

Creek County

Shaw, Doak & Hughes No. 2 White, SW SE SW section 24-17-7, Creek County, had Oswego lime at 2,430 feet, Prue sand 2,526 feet, total depth 2,540 feet, and produced 6,500,000 feet of gas from both formations.

Curtis Oil Co. No. 1 Coonrod, NW NE SW section 10-19-9, had a hole full of water in Bartlesville sand at 2,325-43 feet, total depth, and was dry and abandoned. Johnson Oil Refining Co. No. 6 Flinchum, SE NE SW section 11-19-9, topped Layton sand at 1,148 feet; total depth, 1,176 feet, was shot and flowed 80 bbls. of oil daily. Elliott Brothers No. 1 Ross, NW cor. section 20-19-9, an old well, was deepened from 2,350 feet to 2,505 feet, water intruded, and it was abandoned. Sinclair Prairie Oil Co. No. 4 Jones, SE SW NW section 4-17-7, an old well, was plugged back from 2,887 feet to 2,745 feet and pumped 23 bbls. of oil and 63 bbls. of water in 24 hours, recompleted.

New work in Creek County: Sinclair Prairie Oil Co. No. 11 Jones, NW NE NW section 4-17-7, an old well, rigging up standard tools to deepen; Pure Oil Co. No. 2 Richards, NE SE SW section 4-17-7, an old well, wait-on orders to deepen; Oklahoma Utilities Co. No. 1 Dresser, C W half SW SW section 16-17-8, an old well, cleaning out; L. B. Jackson No. 8 Bear, NE NE SE section 35-18-8, machine; Sinclair Prairie Oil Co. No. 2 Oates, SE SE NE section 14-19-9, topped Layton sand at 1,238 feet, was shot at 1,238-1,303 feet, total depth, pumped 25 bbls. of oil daily but was not completed: Bryan Petroleum Co. No. 3 McClain, SE NE NW section 22-19-9, rigging up machine; Glen A. Campbell No. 4 Purcell, SW NW NE section 22-19-9, drilling at 225 feet.

LeFlore County

J. Lynch and others No. 1 Tidwell, C NW SE section 17-3n-22, wildcat southeast of Talihina in LeFlore County, was dry and abandoned at 3,505 feet, total depth. Work started at this test in May, 1935.

Atoka County

Prairie Investment Co. No. 1-A Cobb, SW NE NW section 19-3s-11, south of Tushka in Atoka County, was dry and abandoned at 350 feet, total depth.

Carter County

Gulf Oil Corp. No. 1 McCrory, NE NE NW section 5-1s-3w, Carter County sector of the Tussy pool, had sand and lime series beginning at 2,740 feet, total depth 3,205 feet, swabbed 716 bbls. of oil in 18 hours and later pumped as high as 365 bbls. in 12 hours, completed.

Ben G. Barnett Petroleum Co. No. 1 Hooks, SW NE SW section 14-1s-3w, had oil sand at 2,545-56 feet, total depth, and was completed as a 45-bbl. pumper.

Magnolia Petroleum Co. No. 3 Powers, SW NE NW section 4-2s-3w, had sand at 4,335-50 feet, total depth, and pumped 5 bbls. of oil and 25 bbls. of water. Roy M. Johnson No. 19 Davis, SW NE SW section 6-4s-3w, had sand at 1,123 feet, total depth 1,145 feet, and pumped 9 bbls. of oil and 9 bbls. of water in 24 hours.

Skelly Oil Co. No. 2 Miller, NW NW NE section 5-1s-3w, an old well, was deepened from 2,832 feet to 3,230 feet, plugged back to 2,500 feet, and pumped 157 bbls. of oil in 24 hours, recompleted. Cox & Hamon No. 7 Jackson, NW SE NE SW section 15-4s-2w, an old well, was deepened from 2,075 feet to 2,567 feet, pumped 15 bbls. of oil, recompleted.

New work in Carter County: Hefner & Bray No. 1 Hefner, SE SW SE section 4-1s-3w, location; Simpson-Fell Oil Co. No. 2 Merrick, NW SE NW section 9-2s-2w, pits; Cox & Hamon No. 3 Jackson, NW SE SE NW section 15-4s-2w, an old well, cleaning out; Kewanee Oil & Gas Co. No. 10 Ferguson, NE SW NW section 6-4s-3w, location; Magnolia Petroleum Co. No. 70 Richards, SW NW NE section 6-4s-3w, location; Sinclair Prairie Oil Co. No. 23 Lowman, SW NW SE section 9-4s-3w, location.

Okmulgee County

Eagle Picher Lead & Zinc Co. No. 2-A Bullett, SE SW NE section 27-12-12, an old Okmulgee County well, was deepened from 2,403 feet to 2,418 feet, shot and pumped 10 bbls. of oil daily, recompleted. Same company's No. 2 Henry, NW NW SE section 27-12-12, an old well, was deepened from 2,154 feet to Wilcox sand at 3,319 feet, total depth 3,354 feet, plugged back to 3,346 feet and was dry and abandoned.

J. F. Moore No. 1-B Howell, SW SW NE section 14-14-13, was a location for a new Okmulgee County test. Earl and J. M. Tiffney No. 4 Fish, NW SE SE section 25-16-11, was a location.

Muskogee County

M. S. Mussellem No. 1 Marlin, SE NE SE section 33-14-19, Muskogee County, produced 200,000 feet of gas daily from Muskogee sand at 1,415-24 feet and was completed at 1,501 feet, total depth.

Robinson Oil Corp. No. 2 Rockwell, NW NE NE NE section 19-13-16, Muskogee County, had spudded. Metzgar & Fultz No. 1 Pelcher, SW NE SE section 7-14-19, was drilling at 180 feet. Conrad Lambert No. 2 Summers, C E half NE NW section 6-15-15, was rigging up machine.

Pawnee County

E. O. Platter No. 2 Bunch, NW NW SW section 4-20-9, Pawnee County, was completed as a 2-bbl. pumper in Peoples sand at 670-682 feet, total depth. Peter Adamson, Jr., No. 3-A Green, NW NW SE section 25-21-8, was dry and abandoned at 1,140 feet, total depth. Indian Territory Illuminating Oil Co. No. 10 Little, SE SW NW section 6-20-8, pumped one-half

(Continued on Page 163)

Rocky Mountain Area

PREPARING FOR A DEEP TEST IN SOUTH BOGGS STRUCTURE

By T. R. INGRAM

DENVER, Colo., May 17.—There were no completions in Colorado. Two operations shut down for the winter resumed. One of these, Morapas Petroleum Co. No. 1 Coles, will test the fault area between the Thornburg and Iles domes in Moffat County.

Stock Oil Co. No. 1 Griffin, completed on the Garland dome in Wyoming last winter but not gauged, made 740 bbls. per day from the Amsden-Madison. Superior Oil Co., of California, has obtained a block in Carbon County, and will make a 5,000-foot test of the Tertiary formation. This area is having a big lease play following oil discoveries in the Tertiary at Powder Wash. Lance Creek unitization plan is about ready to be put into operation. The Beaver dome test in Sheridan County was abandoned.

Home Oil & Refining Co., of Great Falls, Mont., has acquired producing properties in Cut Bank and Pondera fields and will build 105 miles of pipe line. Ohio Oil Co. is resuming on Dry Creek with one location. Cut Bank had three completions, of which two were dry and six new operations. Kevin-Sunburst had two completions and five first reports.

The Clay Basin gas field in Utah is to be connected by pipe line with Mountain Fuel Supply Co.'s trunk line to Salt Lake City.

NEW MEXICO

Amerada Petroleum Corp. No. 3 Isabell, C SW NE section 15-24-36, Cooper area, Lea County, topped pay at 3,569 feet, was bottomed at 3,600 feet and flowed at the rate of 51 bbls. of oil an hour after acid treatment.

In the Monument-Eunice district, American Petroleum Corp. No. 1-X State, C NW SW section 16-20-37, flowed 50 bbls. of oil naturally from pay topped at 3,774 feet, total depth 3,835 feet. Same company's No. 3-V State, section 36-19-36, topped pay at 3,796 feet, total depth 3,915 feet, was acidized and flowed 79 bbls. of oil an hour.

Continental Oil Co. No. A-11-4 Sanderson, NE SW SE section 11-20-36, flowed 60 bbls. of oil an hour at 3,865 feet, total depth, in lime.

Gulf Oil Corp. No. 8 Anderson, C SW NE section 17-20-37, had pay at 3,805 feet, total depth 3,868 feet, and flowed 522 bbls. of oil naturally in five hours. Humble Oil & Refining Co. No. 4-F State, C SW SW section 17-20-37, was acidized and flowed 48 bbls. of oil an hour from pay at 3,760 feet, total depth 3,855 feet. Ohio Oil Co. No. 3 Laughlin, C SW NE section 9-20-37, found pay at 3,812 feet, was bottomed at 3,850 feet, acidized and flowed 80 bbls. of oil an hour.

Skelly Oil Co. No. 4 Van Etten, C NE SW section 9-20-37, had pay at 3,795 feet, total depth 3,875 feet, and flowed 172 bbls. of oil an hour naturally through open tubing, with 1,250,000 feet of gas. Phillips Petroleum Co. No. 1 Hudson-State, C NW NE section 30-20-37, was bottomed at 3,850 feet, acidized and flowed 188 bbls. of oil in two and one-half hours. Shell Petroleum Corp. No. 2-E State, C NW NW section 13-20-36, flowed 345 bbls. of oil naturally at 3,884 feet, total depth.

Stanolind Oil & Gas Co. No. 3 Gillully, C SE SW section 33-20-37, had pay at 3,815 feet, total depth 3,825 feet, was acidized two times and flowed 14 bbls. of oil in two hours. Tide Water Associated Oil Co. No. 2 Laughlin, C NE SW section 4-20-37, topped pay at 3,835 feet, total depth 3,895 feet, acidized and flowed 81 bbls. of oil an hour. Two States & Southern Petroleum Exploration Co. No. 3 McQuatters, C SW NE section 11-21-36, flowed 132 bbls. of oil in three hours after acidizing lime topped at 3,820 feet, total depth 3,865 feet.

Other Lea Wells

In the Sims area, Skelly Oil Co. No. 4 Baker, C SW NW section 27-22-37, topped pay at 3,545 feet, total depth 3,610 feet, was shot and flowed 132 bbls. of oil in 20 hours. Penrose & Rowan No. 3 Carey, C SE NW section 22-22-37, topped pay at 3,507 feet, total depth 3,680 feet, and flowed 127 bbls. of oil daily after a shot.

Harry Leonard No. 3 Lanehart, C NE NW section 21-25-37, had natural flow of 137 bbls. of oil in 12 hours from pay topped at 2,965 feet, total depth 3,091 feet.

Other recent Lea County completions: Continental Oil Co. No. 4-A-30 Lockhart, section 30-21-36, topped pay at 3,992 feet; total depth 2,930 feet; flowed 280 bbls. of oil in 24 hours.

Gulf Oil Corp. No. 7 Anderson, C SE NE section 17-20-37, had pay at 3,810 feet; was bottomed at 3,868 feet and flowed 1,200 bbls. of oil in 24 hours. Same company's No. 2-F Bell-State, section 36-20-36, flowed 394 bbls. of oil in 24 hours from pay at 3,754 feet; total depth 3,848 feet. Same company's No. 3 Campbell, section 7-21-36, found pay at 3,800 feet; total depth 3,914 feet; plugged back to 3,898 feet, and flowed 25 bbls. of oil in 24 hours.

Repollo Oil Co. No. 2-B Stuart, section 10-25-37, flowed 316 bbls. of oil in 24 hours from pay topped at 3,228 feet; total depth 3,380 feet.

Shell Petroleum Corp. No. 3-M State, NE section 1-21-35, had pay at 3,760 feet; total depth 3,857 feet, and flowed 336 bbls. of oil in 24 hours.

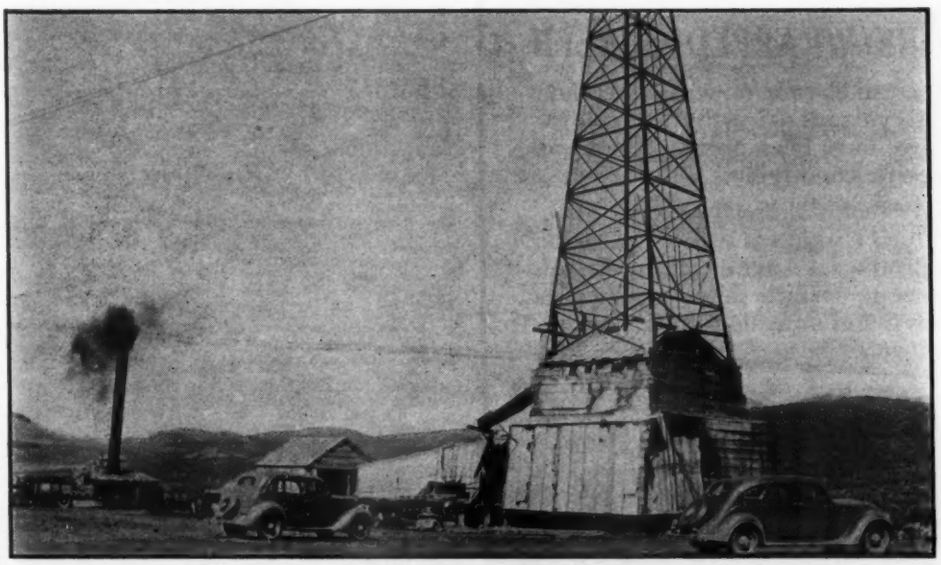
W. H. Street and others No. 1 Wood, SE NE NE section 22-22-37, found pay at 3,560 feet, was bottomed at 3,654 feet and flowed 88 bbls. of oil in 24 hours.

Texas Co. No. 7 Lieu Lands, section 20-20-37, flowed 410 bbls. of oil in 24 hours after acid treatment. Top of pay was 3,710 feet; total depth 3,864 feet. Same company's No. 2-K State, section 18-19-37, had pay at 3,900 feet; total depth 4,020 feet, and flowed 1,608 bbls. of oil in 24 hours.

In Eddy County, Republic Production Co. No. 3 Robinson, C NE NE section 21-17-29, had pay at 2,600 feet; total depth 2,798 feet, and flowed 46 bbls. of oil in 24 hours. Hall & Wells Drilling Co. No. 1 Fogarty, C SW SW section 14-23-29, wildcat, found sulfur water at 3,105 feet and was dry and abandoned at 3,144 feet, total depth. Wesley McCalister No. 1 Cagle Permit, C NW NW section 8-26-30, was temporarily abandoned.

Monument Area

Gulf Oil Corp. No. 2 Hatchett, C SW NW sec. 33-19-37. T.D. 3,905 ft.; reacidized.
Continental Oil Co. No. 16-C-1 State, C SW NW sec. 16-20-37. T.D. 3,809 ft.; rebuilt derrick; cleaning out.
Gulf Oil Corp. No. 1 Bates, C SE SE sec. 26-19-36. T.D. 3,973 ft.; to shoot.
Phillips Pet. Co. No. 1 Mexico-State, C NE NE sec. 30-20-37. T.D. 3,843 ft.; flowed 126 bbls. daily; acidized; swabbing.
Repollo Oil Co. No. 4-A Phillips, NW SW sec. 31-19-37. Drlg. 3,920 ft.
Amerada Pet. Corp. No. 2-A Byrd, sec. 12-20-36. Drlg. 3,200 ft.
Phillips Pet. Co. No. 1 Quapaw-State, sec. 10-20-37. T.D. 3,840 ft.; swb. 9 bbls. oil hourly; reacidized.
Gulf Oil Corp. No. 1-C Kutter-State, C SE NE sec. 18-19-37. T.D. 3,875 ft.; connecting.
Gulf Oil Corp. No. 2 Smith, C NE NE sec. 34-19-36. Drlg. 3,907 ft.
Shell Pet. Corp. No. 4-K State, C NW NE sec. 36-20-36. Drlg. 2,950 ft.
Tide Water Associated Oil Co. No. 1-J State, C SW NW sec. 17-19-37. Drlg. 3,825 ft.
Repollo Oil Co. No. 7 Barber, sec. 8-20-37. T.D. 3,840 ft.; preparing to kill well.
Continental Oil Co. No. 4-B-18 Britt, sec. 18-20-37. T.D. 3,742 ft.; W.O.C.
Ohio Oil Co. No. 1 State-Hansen, sec. 16-20-37. Drlg. 3,790 ft.
Amerada Pet. Corp. No. 4-F State, C SE SW sec. 36-19-36. T.D. 3,814 ft.; W.O.C.
Amerada Pet. Corp. No. 2-M State, sec. 13-20-36. Drlg. 1,940 ft.
Amerada Pet. Corp. No. 1-Y State, sec. 17-20-37. T.D. 2,401 ft.; set 8⅝-in. at 2,394 ft.
Amerada Pet. Corp. No. 2-Y State, sec. 17-20-37. Drlg. 525 ft.
Amerada Pet. Corp. No. 1-Z State, sec. 13-20-36. Drlg. 1,800 ft.
Amerada Pet. Corp. No. 2-Z State, sec. 13-20-36. Drlg. 1,210 ft.
Gulf Oil Corp. No. 8 Ramsey, sec. 17-20-37. Drlg. 480 ft.
Gulf Oil Corp. No. 2-D Orcutt, sec. 13-20-36. T.D. 3,535 ft.; reset csg.
Gulf Oil Corp. No. 3 White, sec. 25-20-36. T.D. 276 ft.; set 10¾-in. at 258 ft.
Phillips Pet. Co. No. 2 Hobbs, sec. 18-20-37. Drlg. 450 ft.
Phillips Pet. Co. No. 3 Mexico, sec. 18-20-37. Derrick.
Atlantic Prod. Co. No. 1-O State, sec. 32-20-37. Drlg. 1,200 ft.
Empire O. & R. Co. No. 1 Persons, sec. 27-19-36. Rig.
Skelly Oil Co. No. 5 Van Etten, sec. 9-20-37. Rig.
Skelly Oil Co. No. 6 Van Etten, sec. 9-20-37. Drlg. 510 ft.
Continental Oil Co. No. 17-A-4 State, C NE SW sec. 17-19-37. Drlg. 2,485 ft.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. T.D. 205 ft.; set 12½-in. csg. at 197 ft.
Continental Oil Co. No. 18-B-5 Britt, C SW SW sec. 18-20-37. Rig.
Continental Oil Co. No. 11-A-5 Sanderson, NE SE SW sec. 11-20-36. Drlg. 2,552 ft.
Ohio Oil Co. No. 2 State-Hansen, C W½ SW NE sec. 16-20-37. Location.
Amerada Pet. Corp. No. 4-D State, sec. 1-20-36. Drlg. 2,360 ft.
Amerada Pet. Corp. No. 4-T State, sec. 25-19-36. Drlg. 1,985 ft.
Amerada Pet. Corp. No. 2-B Weir, sec. 25-19-36. Derrick.
Gulf Oil Corp. No. 4-F Bell-State, sec. 36-20-36. Derrick.
Gulf Oil Corp. No. 2-G Bell-State, sec. 13-20-36. Drlg. 2,522 ft.
Gulf Oil Corp. No. 4 White, sec. 25-20-36. Drlg. 3,540 ft.



Morapas Petroleum Co. No. 1 Coles, Moffat County, Colorado

Repollo Oil Co. No. 5 Byrd, sec. 11-20-36. Drlg. 2,230 ft.
Texas Co. No. 8 Lieu Lands, sec. 20-20-37. Loc.
Phillips Pet. Co. No. 3 Hobbs, SW sec. 18-20-37. T.D. 272 ft.; rng. csg.
Amerada Pet. Corp. No. 2-Q State, SE sec. 16-20-37. T.D. 180 ft.; set 12½-in. csg. at 172 ft.
Texas Co. No. 3 Sanders, SE sec. 18-19-27. Drlg. 1,028 ft.
Texas Co. No. 10 Lieu Lands, NW sec. 19-20-37. R.U.R.
Sun Oil Co. No. 1 Barr, SW sec. 24-19-38. Loc.
Tide Water Oil Co. No. 2-T State, C NW NW sec. 17-19-37. Cellar and pits.
Gulf Oil Corp. No. 5 White, C NE NE sec. 25-20-36. Drk.
Gulf Oil Corp. No. 5-F Bell, C SW SW sec. 36-20-36. Drk.

Chaves County

J. & L. Drlg. Co. No. 1 Hurd, C SE NW sec. 14-11-26. Drlg. 1,285 ft.
English & Harmon No. 1 Billingslea, SE sec. 9-15-29. Drlg. 3,500 ft.

Eunice Area

Getty Oil Corp. No. 1 State D, C SE NE sec. 32-20-37. T.D. 3,860 ft.; cleaning out.
Gulf Oil Corp. No. 4 Leonard, C SW NE sec. 22-21-36. T.D. 3,905 ft.; P.B. to 3,892 ft.; shut in for orders.
Jim Murray No. 4 State-Wallace, sec. 3-21-36. Cellar.
Gulf Oil Corp. No. 1 Bell-Ramsey B, C SW SW sec. 29-20-37. T.D. 3,840 ft.; S.D.
Tide Water Associated Oil Co. No. 1 Marshall, C SW NE sec. 13-21-36. T.D. 4,005 ft.; P.B. 3,770 ft.; perf. csg.; 300,000 ft. gas; no oil.
Ohio Oil Co. No. 6 McDonald, C SE SW sec. 16-22-36. Drlg. 3,066 ft.
Oil Well Drlg. Co. No. 1 State A, C NW NW sec. 16-22-26. T.D. 3,804 ft.; flowing while cleaning out.
Stanolind O. & G. Co. No. 1 Owen, NW sec. 3-22-37. T.D. 3,600 ft.; moving in standard tools.
Devonian Oil Co. No. 2 State, SE sec. 3-21-36. T.D. 3,843 ft.; P.B. 3,840 ft.; flowing 2 bbls. oil and water hourly.
Gulf Oil Corp. No. 13 Arnott-Ramsey, sec. 21-21-36. Drlg. 2,360 ft.
Humble O. & R. Co. No. 1-G State, sec. 23-21-36. T.D. 2,860 ft.; swb. and flowing 8 bbls. an hour.
Texas Co. No. 4 Rector, sec. 30-21-36. T.D. 3,780 ft.; set 7-in. at 3,764 ft.
Gulf Oil Corp. No. 2-E Bell-State, sec. 11-21-36. Drlg. 1,010 ft.
Gulf Oil Corp. No. 4 Campbell, sec. 7-21-36. Derrick.
Empire O. & R. Co. No. 1-G State, sec. 2-21-36. Drlg. 2,646 ft.
Gulf Oil Corp. No. 5 Collins, sec. 14-21-36. Derrick.
Gulf Oil Corp. No. 8-C Orcutt, sec. 6-21-36. Drlg. 1,260 ft.
Stanolind O. & G. Co. No. 1 McQuatters, sec. 11-21-36. Drlg. 3,784 ft.
Stanolind O. & G. Co. No. 1-A Langlie, sec. 11-21-36. Drlg. 2,766 ft.
Humble O. & R. Co. No. 2-G State, C NE NW sec. 23-21-36. Derrick.
Stanolind O. & G. Co. No. 1 Hill, C Lot 15, Sec. 5-21-36. Derrick.
Gulf Oil Corp. No. 4-C Arnott-Ramsey, sec. 21-21-36. Rigging up rotary.
Shell Pet. Corp. No. 2-M State, sec. 1-21-35. Drlg. by at 3,757 ft.
Republic Prod. Co. No. 1 State, SE sec. 12-21-35. Loc.
Magnolia Pet. Co. No. 4 Carson, SW sec. 28-21-37. T.D. 1,350 ft.; rng. csg.
Gulf Oil Corp. No. 3 King, NW sec. 28-21-37. Derrick.

Dona Ana County

Juels C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; set 20-in. at 37 ft.

Hobbs Area

Stanolind O. & G. Co. No. 9 State, sec. 9-19-38. Drlg. 3,410 ft.

Sims Area

Skelly Oil Co. No. 1 R. R. Sims C, C SE SW sec. 3-23-37. Drlg. by tools; T.D. 3,388 ft.
J. E. Farrell No. 1-A Walden, C SW NW sec. 15-22-37. T.D. 3,746 ft.; C.O.
Skelly Oil Co. No. 1 Sticher, sec. 4-22-37. Drlg. 3,665 ft.
Gulf Oil Corp. No. 1 Davis, sec. 8-23-27. Drlg. 2,750 ft.
J. E. Farrell No. 2-B Walden, C NE SW sec. 15-22-37. Drlg. 3,250 ft.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 2,950 ft.
Empire O. & R. Co. No. 2 Walden, sec. 21-22-37. T.D. 1,280 ft.; set 8¼-in. at 1,250 ft.
Skelly Oil Co. No. 2 H. O. Sims, sec. 4-23-37. Drlg. 1,970 ft.
Skelly Oil Co. No. 5 R. R. Sims, sec. 3-23-47. Drk.
Tide Water Oil Co. No. 3 Walden, sec. 21-22-37. Drlg. 700 ft.
Skelly Oil Co. No. 2 G. W. Sims, sec. 9-23-37. Drlg. 3,643 ft.
Continental Oil Co. No. 21-A-2 Elliott, C SW SE sec. 21-22-37. Drlg. 2,888 ft.
Skelly Oil Co. No. 3 R. R. Sims, sec. 4-23-37. T.D. 3,395 ft.; waiting on standard tools.
Skelly Oil Co. No. 4 R. R. Sims, sec. 4-23-37. T.D. 3,390 ft.; set 7-in. csg. at 3,389 ft.
Amerada Pet. Corp. No. 1 Corrigan, SW SW NE sec. 4-22-37. Location.
Rowan Drilling Co. No. 1 Walden, C NW NW sec. 15-22-37. Derrick.
Gulf Oil Corp. No. 1 Baker, C SE SE sec. 5-22-37. Loc.

Cooper Area

Southern Oil Corp. No. 1 Gates, C SW NW sec. 23-24-26. T.D. 3,514 ft.; S.D. for orders.

Lea County—Miscellaneous

Brown & Reynolds No. 1 Parcell, C NW SE sec. 8-21-38. Wildcat; T.D. 4,397 ft.; P.B. 4,386 ft.; waiting on pumping unit.
Amon G. Carter No. 2 Elliott, C NE SW sec. 22-22-37. T.D. 3,622 ft.; C.O.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 24-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.; swb. 94 bbls. daily.
Continental Oil Co. No. 1 Wantz, C SW SW sec. 21-21-37. T.D. 3,820 ft.; C.O.
Stanolind O. & G. Co. No. 1 Meyers, sec. 22-24-37. T.D. 3,553 ft.; testing.
Texas Co. No. 1 Alexander, sec. 5-21-37. T.D. 3,755 ft.; shot; flowed 43 bbls. oil in 24 hrs.
Samedan Oil Co. No. 3 Hughes, sec. 4-23-27. T.D. 3,631 ft.; C.O.
Texas Co. No. 2 Black, sec. 21-24-37. Drlg. 3,105 ft.
Gulf Oil Corp. No. 1 Hardy, C SE SW sec. 20-21-37. T.D. 3,810 ft.; testing.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-25-37. T.D. 2,931 ft.; fishing.
Herschback et al No. 1 Alston, C SW NE sec. 31-17-37. Drlg. 3,635 ft.
Williams & Cockburn No. 3 Miller, C SW SW sec. 23-17-32. T.D. 3,853 ft.; testing.
Ohio Oil Co. No. 1 Grizzell, C SW SE sec. 5-22-37. Drlg. 3,572 ft.
Stanolind O. & G. Co. No. 2 Meyers, SW sec. 4-24-37. Drlg. 3,323 ft.
Stanolind O. & G. Co. No. 3 Meyers, SE sec. 4-24-37. Drk.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. Drlg. 3,517 ft.
Gulf Oil Corp. No. 2 King, sec. 28-21-37. T.D. 3,800 ft.; C.O. after shot.
Gulf Oil Corp. No. 1 Shahan, sec. 33-25-37. Wildcat; drlg. 2,995 ft.
Gulf Oil Corp. No. 1 Woolworth, sec. 30-24-37. Wildcat; T.D. 3,217 ft.; gas; to deepen.
Maljamar O. & G. Co. No. 3 Mitchell, C SE NE sec. 20-17-32. R.U.S.T.
Texas Co. No. 1 Fristoe, C SW NW sec. 35-24-37. Drlg. 3,428 ft.
Stanolind O. & G. Co. No. 4 Meyers, sec. 22-24-37. T.D. 3,450 ft.; set 5½-in. at 3,327 ft.
Stanolind O. & G. Co. No. 5 Meyers, sec. 22-34-37 Drlg. 2,425 ft.
Magnolia Pet. Co. No. 1 Hanna, sec. 7-26-38. Wildcat; anhydrite 1,175 ft.; salt 1,385 ft., T.D.; S.D. for repairs.
Empire O. & R. Co. No. 3-A Closson, sec. 6-22-36. Drk.
Gulf Oil Corp. No. 1 Knight, sec. 27-24-37. T.D. 1,358 ft.; set 8⅝-in. csg.
Harry Leonard No. 1 Siddall, sec. 6-20-38. Wildcat; drlg. 3,534 ft.
Skelly Oil Co. and Devonian Oil Co. No. 2 Christmas, sec. 21-22-36. Drlg. 1,412 ft.
Humble O. & R. Co. No. 1 Greenwood, sec. 92-2-37. T.D. 3,640 ft.; set 7-in. at 3,547 ft.
Landreth Prod. Co. No. 2 Grizzell, sec. 5-22-37. R.U.R.
Magnolia Pet. Co. No. 3 Cary, sec. 21-22-37. R.U.S.T.
Repollo Oil Co. No. 1 Fowler, sec. 9-24-37. Drlg. 3,122 ft.
El Paso Natural Gas Co. No. 1 Camp, C SW SW sec. 6-24-37. Drlg. 2,761 ft.
Schermerhorn Oil Co. No. 1 Woolworth, C NW NE sec. 28-24-37. Drlg. 1,150 ft.
Gulf Oil Corp. No. 1 Westfall, SE SW SE sec. 15-25-37. Drlg. 2,580 ft.
Continental Oil Co. No. 1 Burger, C NW SW sec. 19-20-38. Drlg. 2,660 ft.
Culbertson-Irwin et al No. 1 Moseley, SE NE SW sec. 34-24-37. Drk.
Continental Oil Co. No. 1-A-15 Cline, NW sec. 15-23-37. Wildcat; drlg. 366 ft.
Repollo Oil Co. No. 2 Christmas, sec. 28-22-37. Loc.
Repollo Oil Co. No. 1 Turner, sec. 29-21-37. Drk.
Shell Pet. Corp. No. 1 Rinewalt, NW sec. 4-22-37. Drlg. 825 ft.
F. J. Danglade No. 1 Christmas, C SE NE sec. 5-22-37. Drlg. 1,160 ft.
Devonian Oil Co. No. 2 Christmas, SE sec. 28-22-37. Cellar and pits.
Devonian Oil Co. No. 3 Christmas, C SW SE sec. 28-22-37. Cellar and pits.
Magnolia Pet. Co. No. 4 Cary, C NW SW sec. 21-22-37. Derrick.
Texas Pacific Coal & Oil Co. No. 4-A State, C SW SW sec. 9-22-36. Location.
Texas Co. No. 2-A Rhoades, SE NW SE sec. 22-26-37. Location.
Stanolind O. & G. Co. No. 1 Turner, C NW NW sec. 20-20-38. Location.

Eddy County

Adams et al No. 1 Page, sec. 15-21-18. Wildcat; T.D. 100 ft.; S.D.O.
Republic Prod. Co. No. 7 Russell A, NW SE NW sec. 18-17-31. T.D. 3,535 ft.; C.O.

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of WIRE WRAPPED SCREEN

assured by use of special wire to meet specific conditions.

Acidic conditions of fluid have varying effects on different metals used in screen manufacture. Only in Wire Wrapped Screen is it practical to make a screen of the material offering greatest resistance to the conditions encountered.

The LAYNE WIRE WRAPPED SCREEN

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By using Galvanized Steel, Admiralty Brass, Commercial Bronze, Enduro (Stainless Steel) or Nickel wire we are able to produce a Layne Screen that offers greatest resistance to specific acidic conditions. These wires are drawn and annealed to our specifications in our patented shape—slightly tapered toward the bottom.

Such precise manufacture is further assurance of longer life for Layne Wire Wrapped Screen.

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THE LAYNE WIRE WRAPPED SCREEN

Barnsdall Oil Co. No. 5 Dodd, sec. 22-17-29. T.D. 2,757 ft.; P.B. 2,730 ft.; shot 2,580-2,730 ft.; est. 60 bbls.
William Dooley No. 2 Hatchett, SW SW NE sec. 14-20-26. Drlg. 230 ft.
Flint Prod. Co. No. 1-B Flint, sec. 20-17-30. T.D. 3,255 ft.; running tubing.
Murchison No. 1-B State, SE sec. 16-17-30. Drlg. 3,528 ft.
Carper Drlg. No. No. 2 Gissler, NW sec. 23-17-30. Loc.
Continental Oil Co. No. 1 Barrett, NW sec. 22-20-30. Drlg. 1,736 ft.
Repollo Oil Co. No. 1-D Parke, sec. 15-17-30. Drlg. 2,220 ft.
Flynn, Welch, Inc., No. 2 Stevens, sec. 13-17-30. Drlg. 2,862 ft.
Neil Wills et al No. 1 Stovall-Wood, sec. 20-20-30. T.D. 1,435 ft.; swb. 125 bbls. oil daily.
Carlsbad Oil Co. No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. Drlg. 350 ft.
Barnsdall Oil Co. No. 6 Dodd, sec. 22-17-29. Drlg. 1,620 ft.
Grayburg Oil Co. No. 3 Keely, SE NE NE sec. 24-17-29. Drlg. 1,755 ft.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 490 ft.; set 8¼-in. csg.
F. W. & Y. Oil Co. No. 4 Gissler, C SE SE sec. 14-17-30. Drlg. 1,925 ft.
F. W. & Y. Oil Co. No. 5 Gissler, C NE SE sec. 14-17-30. Drlg. 815 ft.
Harry Leonard No. 10 State, SE SW SW sec. 27-17-29. Drlg. 4,705 ft.
Fred Brainerd No. 2 Brainerd, sec. 5-18-27. Loc.
W. A. Nichols No. 1 Johnson, NE sec. 35-16-21. Wildcat; R.U.M.
F. E. Baker No. 4 Eddy, NE sec. 12-22-27. Loc.
Robinson No. 4 well, sec. 27-17-29. Loc.
Alscott Oil Co. No. 1 Gooddale, SW NW SE sec. 30-18-29. Location.
H. & W. Drlg. Co. No. 1 Danford, C SE SE sec. 9-22-29. Moving in machine.
Neil H. Wills et al No. 1 Morris Hoover, C SW NW sec. 20-20-37. Moving in machine.

Roosevelt County

Clovis Corp. No. 2 Wilmes, C SE NE sec. 17-2s-30e. Show of oil at 3,377-79 ft.; drlg. 3,355 ft.
Dummit Oil Co. No. 1 Todd, SE SE sec. 34-3n-29. Drlg. 568 ft.

Otero County

George Muldey No. 1 State, SW cor. sec. 11-25-8e. T.D. 263 ft.; S.D.
Fred Turner No. 1 Hattie Evans, NW NW SW sec. 22-14-12. O.W.D.D.; wildcat; drlg. 2,215 ft.

Curry County

Bond & Harrison No. 1 Hart Ranch, C NW SE sec. 13-2n-31. T.D. 1,150 ft.; waiting for pipe.

McKinley County

S. Dysart No. 1 Government, NE sec. 14-14-10w. T.D. 1,390 ft.; fishing.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. Drlg. 3,200 ft.

San Juan County

Continental Oil Co. No. 60 Tribal, NW NW NE sec. 2-29n-19w. M.I.M. (first report).
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. S.D. at 370 ft.
Jack Amenda No. 4 Hart, NW NE SW sec. 25-30n-12w. Drlg. 1,785 ft.

Socorro County

R. Allen Brown, Tr., No. 1 Belen Grant, SE NW sec. 16-2n-1e. Bldg. rig.

Valencia County

C. A. Grober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. S.D. 440 ft. in L.

COLORADO

Adams County

Glenridge Oil Co. No. 1 Hills, SE SE SE sec. 27-3s-64w. T.D. 4,345 ft.; pipe recovered; W.O. new string.

Bent County

Indian Territory Ill. Oil Co. and Olson Drilling Co. No. 1 Arbes, C Lot 2, sec. 2-21s-48w. Loc. (first report).

Boulder County

Boulder Prod. & Dev. Co. No. 1 Harlow Est., SE NE sec. 36-2n-71w. Drlg. 110 ft. in new hole; (cor. loc.).

Cheyenne County

Brittel Oil, Inc., No. 1 Seip, C NE SW sec. 26-12s-47w. Cmtd. 18-in. at 100 ft.; drlg. ahead, daylight only.

Grand County

Interstate Oil & Refining Co. No. 1 Hinman, NE SE NW section 11-2n-81w, on the Dirt Creek structure, shut down for over a year at 1,997 feet, is resuming. An analysis of samples from the bottom indicates it is in the lime found several hundred feet above the Dakota.

Interstate Oil & Ref. Co. No. 1 Hinman, NE SE NW sec. 11-2n-81w. T.D. 1,997 ft.; resuming.

Huerfano County

S. W. Pressey No. 1 Ojo, SW NE sec. 10-29s-69w. Drlg. 3,350 ft. after lowering 5⅞-in. to bottom to S.O. cavings caused by gas; Dakota expected 3,900 ft.

Larimer County

L. D. Charboneau et al No. 1 Thompson, C NE sec. 12-4n-70w. Drlg. 153 ft.

Lincoln County

Consolidated Smelting & Metals Corp. No. 1 Hancock, NE NE SW sec. 7-17s-52w. Drlg. 2,440 ft.; dark br. sh.; 8¼-in. at 2,350 ft.

Moffat County

Morapas Petroleum Co., which last year moved in standard rig for a cable tool test to the Sundance at 3,250 feet in No. 1 N. E. Coles in the faulted area between the Thornburg and Iles domes, began spudding on April 15 and is drilling in the Mancos shale at 500 feet. This will be an interesting operation. Wells on the Iles dome which showed water with dead oil in the Dakota were followed by production in the Sundance. The operator believes this oil may have migrated from the Dakota and been trapped in fault zones. If test is not successful in these horizons, it may be carried to the Tensleep.

Morapas Pet. Co. No. 1 Coles, SW SW SE sec. 1-3n-92w. Drlg. 500 ft.
Mountain Fuel Supply Co. No. 1 Donnell, C SE NE sec. 31-12n-97w. Drlg. 4,120 ft.
Anderson-Kerr Drlg. Co. et al No. 1 Denise, C SE SE sec. 19-9n-99w. Drlg. 1,950 ft. in 12½-in. hole.
Anderson-Kerr Drlg. Co. No. 1 Marrs, C SE NE sec. 17-11n-100w. Prep. to M.I. company tools.

Morgan County

Swisher et al No. 1 Lunt, SE cor. sec. 3-4n-60w. T.D. 1,718 ft.; W.O. shooter.

Park County

South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. T.D. 4,567 ft.; pulled 8¼-in.; cmtd. cave 140 ft. below 10-in. at 4,060 ft.; prep. to test.

WYOMING

Albany County

Murphy Oil Co. No. 3 Wilson, SW NW SW section 18-17n-76w, Quealy dome, north offset to its No. 1 Wilson, is a completion at 4,010 feet. Tops were Frontier, 2,674 feet; Muddy, 3,315 feet; Dakota, 3,401 feet and Sundance, 3,883 feet. Production from the Dakota is estimated at 400 to 500 bbls. per day. The 7-inch was set above the Sundance and perforated opposite the Dakota. Elevation 7,470 feet.

Murphy Oil Co. No. 7 Holst, NE NE SE sec. 13-17n-77w. Drlg. 784 ft.
Hal Blakeman No. 1 Chapple, C NE NW sec. 33-21n-76w. C.O. to bottom at 1,681 ft.
Murphy Oil Co. No. 1 Holst-Woolf, NW NW NW sec. 19-17n-76w. Cmtd. 7-in. at 4,067 ft.

Big Horn County

Stock Oil Co. No. 1 Griffin, Lot 60, section 4-55n-97w, an outpost well on the southern end of the Garland dome, completed in the Madison lime last December at 4,200 feet, total depth, but not gauged, made 740 bbls. per day on a test after being acidized. When shut down last winter it was estimated at 400 bbls. before acidizing. The pay is in the Amsden and Madison at 3,854-4,200 feet.

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LONE STAR GASOLINE CO.

1915 WOOD STREET DALLAS, TEXAS

The 5½-inch was cemented at 3,854 feet. The well was drilled to 1,600 feet by Peter Evanoff and others, and was then taken over by Stock Oil Co. It had oil and gas in the Embar at 3,564-80 feet and gas at 3,580-90 feet. Top of the Embar was at 3,551 feet. The well is approximately 350 feet lower than the company's No. 1 Allen, 2,000 feet northwest. Kinney-Coastal Oil Co. No. 3 Government, on the northwestern flank of the dome (in Park County), being deepened to the Madison, is slightly lower than No. 1 Griffin and will yield further evidence of the quantity of oil in the Madison on this structure, one of the largest in the basin.

Stock Oil Co. No. 1 Stock-Jones, SE cor. sec. 52-56n-97w. Spdg.
Ohio Oil Co. No. 1 Pryde, C SW SE sec. 24-56n-97w. Cmtd. 12½-in. at 387 ft.; drlg. plug.
Ohio Oil Co. No. 1 Smith, NE cor. Lot 61, sec. 33-56n-97w. R.U. to deepen from Dakota at 1,976 ft. to Tensleep.
Woods-Callahan Oil Co., Ltd., and Wyoming O. & R. Co. No. 1 Evans, NE NE NW sec. 12-44n-91w. M.I. rot. rig from California.

Campbell County

G. J. Sherin et al No. 1 Rodes, NE SE SW sec. 24-49n-74w. Drlg. 500 ft.

Carbon County

Superior Oil Co., of California, which has had its land men and geologists in the Rocky Mountain area for the past year, is preparing to drill its first deep test on the South Baggs structure in Carbon County, on the Cherokee Ridge fold which extends westward to the Powder River area 50 miles to the west. Contract was signed the past week with S. Marvin James and associates, of Denver, for a block of 5,280 acres close to the Wyoming-Colorado line. Test will be drilled with rotary under a unit plan agreement filed with the district office of the U. S. Geological Survey at Casper. It will test the Tertiary formation to 5,000 feet, starting at about the same horizon as the Powder Wash oil wells. Location will be either on the S. Marvin James permit in section 11-12n-93w, or the C. W. Bivens permit in section 12. The deal included the payment of a cash bonus. W. H. Taylor, of Los Angeles, formerly a Wyoming state senator, represented the Superior company and Luther Freeman and James represented the local interests. The location will be approximately 6 miles southwest of the gas well drilled by James and Bivens and associates on the Baggs structure in the SE SW SW section 35-13n-92w, in 1929 to 2,160 feet, where it was estimated good for 25,000,000 feet.

The general area between the Baggs operation and Powder Wash is the hottest lease play in the Rocky Mountain area at present. Several important deals, involving Tertiary tests, are reported under way. Universal Consolidated Oil Co. and Italo Petroleum Co. were reported a few weeks ago to have closed for a test in the Powder Wash district. Carter Oil Co. and Continental Oil Co. have crews in the field making surveys. Ohio Oil Co., California Co., and others, have considerable acreage. Anderson & Kerr Drilling Co. has one well drilling on the Colorado side at Dry Mountain and is preparing to drill another test on South Vermilion. The activity arises out of oil discoveries in the Tertiary at Powder Wash by Mountain Fuel Supply Co.

Ohio Oil Co. No. 6 Diamond Cattle, NW NW sec. 35-20n-78w. T.D. 3,334 ft.; P.B. to 3,321 ft.; swbg. 25 B.W.P.D. and some oil.
Medicine Bow Oil Co. No. 1 Hintze-Govt., C NE SE sec. 18-22n-78w. T.D. 2,180 ft.; tstg.
Ohio Oil Co.-California Co. No. 2 Kyle, C SE SE sec. 26-21n-79w. T.D. 5,712 ft.; wtr.; P.B. to first Sundance and cmtd. 7-in. at 5,476 ft.
Ohio Oil Co.-California Co. No. 4 Union Pacific, C SW SW sec. 25-21n-79w. Drlg. 5,573 ft. in second Sundance; first Sundance at 5,422-75 ft.
Ohio Oil Co.-Medicine Bow Oil Co. No. 1 U. P.-Wister, C NW SW sec. 17-22n-78w. Rigged up ready to spud.
Ohio Oil Co. No. 8 Dixon, SE NE SE sec. 34-20n-78w. Drlg. 3,353 ft.

Converse County

Wyoming Southern Oil Co. No. 2 Salisbury, NE NW SE section 27-32n-69w, Shawnee district, was completed in the contact between the Tertiary and Cretaceous at approximately 460 feet for 7,500,000 feet of gas, the same as No. 1 Salisbury, which it offsets. Top of sand was at 453 feet.

Tom Carney No. 1 Beaver, SE SE SW sec. 28-35n-68w. M.I.M. (first report).
Chadron-Osage Oil Co. No. 1 State, SW cor. sec. 16-32n-69w. Drlg. 3,400 ft. in Lower Pierre or Upper Niobrara.
Wyoming Southern Oil Co. No. 1 Evert, NW NW SW sec. 26-32n-69w. Drlg. below 50 ft.

Fremont County

Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. M.I.M. to test Frontier at 600 ft.; 1½ mi. E of Pilot Butte wells.

Johnson County

Carter Oil Co. No. 3 Rider, C NW SE sec. 17-48n-82w. R.U.

Lincoln County

H. M. Eller et al No. 4 Govt., SE NW SW sec. 32-19n-116w. T.D. 401 ft.; will test S.O. in lenticular sd. at 397-401 ft.

Place Oil Co. No. 1 Davis, SE SE SE sec. 9-26n-113w. S.D. at 780 ft.

Natrona County

Stanolind O. & G. Co. No. 1 T.P., C NW SE sec. 26-40n-79w. Cellar.
Wyalta Oil Co. No. 4 Govt., NW NW sec. 5-29n-81w. Cmtd. 6⅝-in. on top of Sundance at 1,082 ft.; rng. 2-in. tbg. to test at 1,030-72 ft.
Wyalta Oil Co. No. 5 Govt., SW SW sec. 30-30n-81w. Testing at 1,021 ft.
Wyalta Oil Co. No. 6 Govt., NE SE NW sec. 5-29n-81w. Cmtd. 10-in. at 704 ft.; Dakota at 565-664 ft.

Niobrara County

Plans for unitization of the Sundance sand oil reserves in Lance Creek have reached the point where copies of the agreement are being submitted to royalty owners for signature. The operating companies whose holdings are in the unitized area, Continental Oil Co., Ohio Oil Co. and Argo Oil Co., have signed and are ready to put the plan into operation as soon as minor details are completed. The plan calls for prorating of the unit's production, regardless of from what leases it is taken, to the several companies on the basis of each company's proportion of the total oil reserves. Each company will, however, operate its own properties and lifting costs will be adjusted where any lease produces under or over its quota. Provisions are made for a total of 43 Sundance sand wells, of which 18 are allotted to the Ohio and Continental companies and seven to the Argo company. Argo now has its quota of wells inside the unitized area and Ohio and Continental are drilling several each to complete their part of the program. The prime object is to conserve the field and obtain the largest recovery. With that end each operator will shut in several of its wells on top of the dome where there is an excess gas-oil ratio. The Continental will build a repressuring plant to return gas to the sand after it has gone through the gasoline plant. The cost, which will be $150,000, will be prorated among the operators on the percentage basis. The percentage of each company's interest in the reserves, determined after an exhaustive study of the total reserves of the field, the proven acreage, the gas-oil ratios, etc., is approximately 16 per cent to Argo and the remaining 84 per cent about equally divided between Ohio and Continental. Provisions are made for the admission of outside companies to the unitized agreement if important extensions are made. If the field is extended east, as is considered probable, and the Tensleep is proven, it may call for some additional unitization plans. The royalty owners are signing the agreement almost unanimously.

No reports of drilling depths have been released by Ohio Oil Co. on No. 5 Leo since it reached top of the red beds at 4,297 feet. This is a test of the Tensleep to which other operating companies would not contribute. It is 2¾ miles east of the first Tensleep test rated at several thousand barrels a day, although no official information was given out. This week there were rumors current regarding the second Tensleep well, based on its being shut down at an undisclosed depth while a blowout preventer was being obtained. Ordinarily this would not be significant but blowout preventers are not used in the field on the Sundance wells.

One new operation was reported, Argo Oil Co. No. 4 Ford, an east offset to Ohio company's No. 7 Putnam.

Argo Oil Co. No. 4 Ford, SW NW SE sec. 33-36n-65w. R.U. (first report).
Argo Oil Co. No. 3 Ford, SW SW NW sec. 33-36n-65w. R.U. to deepen from 3,990 ft.
Ohio Oil Co. No. 2 Putnam, NE SW NW sec. 4-35n-65w. Drlg. 3,196 ft.
Ohio Oil Co. No. 2 Richards & Comstock, C NE SW sec. 32-36n-65w. Drlg. 3,695 ft.
A. B. Cobb and Holly Dev. Co. No. 2 Novick, SE SE SW sec. 6-35n-65w. Drlg. 1,875 ft.; 12½-in. at 209 ft.
Continental Oil Co. No. 4 Schuricht B, NW SW SE sec. 6-35n-65w. R.U.R.
Continental Oil Co. No. 8 Otto Rohlff, SW SW SE sec. 31-36n-65w. Cellar.
Continental Oil Co. No. 10 Tom Bell Cattle, C SW NW sec. 34-36n-65w. Drlg. 2,356 ft.
MacKinnie Oil & Drlg. Co. No. 2 Thompson, NW NW NE sec. 7-35n-65w. Drlg. 2,021 ft.
J. M. Huber Corp. No. 1 Lamb, SE SE SW sec. 27-36n-65w. T.D. 3,910 ft.; recovered D.P. and pulling 10-in.
Ohio Oil Co. No. 5 Leo, NW NW SW sec. 35-36n-65w. Drlg. below 4,407 ft.; depth not reported.

Park County

General Petroleum Corp. No. 1 Government, Gooseberry dome, cored to 6,076 feet when streaks of water began appearing in the Tensleep cores. It was decided to plug back and drill out cement gradually to prevent running into water. It topped the Tensleep at 5,903 feet and cores were fully saturated from 5,903 to 6,050 feet.

Kinney-Coastal Oil Co. No. 3 Govt., SW NW NE sec. 24-56n-97w. T.D. 4,338 ft.; R.U. to deepen.
Resolute Oil Co. No. 1 Govt., C NE NE sec. 20-57n-101w. Cmtd. 16-in. 570 ft.; drlg. 1,000 ft.
General Pet. Corp. No. 1 Govt., NW NW NW sec. 33-47-100. T.D. 6,076 ft.; prep. to test.

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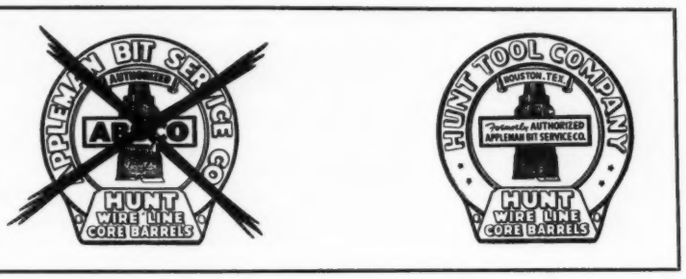

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Platte County

Dividend O. & R. Co., Inc., No. 1, CSL NW SW sec. 17-24n-66. Resuming at 2,385 ft.

Sweetwater County

Mountain Fuel Supply Co. No. 3 Union Pacific, SE NE sec. 15-16n-104w. Drlg. 1,110 ft.

Uinta County

E. A. Ottman et al No. 1 Govt., C SE NW sec. 26-14n-119w. M.I.M. for cable tool test to Bear River form. at 1,600 ft.

Washakie County

Arlton & Doyle No. 1 Govt., SW SW SE sec. 29-48n-91w. T.D. 1,356 ft.; prep. to resume.
Yale Oil Corp. No. 2 Govt., CEL SE SE sec. 25-48n-91w. Loc.
Bruce Teeter No. 5 Govt., CSL SW SW sec. 30-48n-90w. Drlg. 100 ft.; 10-in. at 85 ft.
Christensen & Thorne No. 3-X Govt., NW SW SW sec. 31-48n-90w. Drlg. sh. 860 ft.
Wyoming O. & R. Co. No. 8 Govt., NW NE NW sec. 31-48n-90w. Drlg. 200 ft.; 10-in. at 79 ft.
Wyoming O. & R. Co. No. 7 Govt., SW NW NW sec. 30-48n-90w. Drlg. bl. sh. 710 ft.; 10-in. at 87 ft.

Sheridan County

Beaver Creek Oil Syndicate No. 1 Allison, SW SE section 15-55n-85w, Beaver Creek district, was plugged and abandoned at 3,392 feet. Last sand reported, at 3,090-3,100 feet, probably the Frontier, contained water. Well began spudding in 1933 to test the Billy Creek gas horizons.

Weston County

Henry Egert No. 5, CEL NE SE sec. 8-46n-63w. Drlg. 80 ft. (first report).
R. L. Rose No. 7, C SW SE sec. 8-46n-63w. S.D. 250 ft.

MONTANA

Big Horn County

One completion and one new operation was reported in the Hardin shallow gas field. Big Horn Oil & Gas Co. No. 30, CEL SE NW section 23-1s-33e, was completed at 700 feet for 650,000 feet a day.

Big Horn Oil & Gas Co. No. 31, CWL SE NW sec. 23-1s-33e. Drlg. 625 ft. (first report).
Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e. Drlg. 3,900 ft. with 2-in. bit.

Carbon County

Ohio Oil Co. has made its first location this season in the Dry Creek field, No. 16 Kirt, an inside well which will go to the Dakota.

Ohio Oil Co. No. 16 Kirt, C SE SE sec. 4-7s-21e. M.I. rot. (first report).

Fallon County

Nagasco Corp. No. 1, C SE sec. 24-5n-60e. Drlg. 720 ft.

Glacier County

There were three completions, of which two were dry holes, and six new operations in the Cut Bank field.

Montana Headlight Oil Co. No. 4 Britton, NE SW NE section 14-34n-6w, swabbed 140 bbls. first 24 hours at 2,909 feet. It had 1,000 feet of oil from the Cut Bank at 2,860-97 feet. It had no Sunburst sand. C. E. Walgren No. 2 Britton, near C SE NE section 14-34n-6w, was dry at 2,915 feet. The Cut Bank sand was at 2,860-82 feet.

Santa Rita Oil & Gas Co. No. 1 Madison, CWL NW SW section 30-34n-5w, in an area where there has been comparatively little drilling, with a dry hole a mile north and a producer a mile west, was dry and abandoned at 2,912 feet. The Cut Bank at 2,827-70 feet failed to produce and hole was plugged back to test the Sunburst at 2,776-88 feet, but latter was not commercial. Elevation, 3,778 feet.

Texas Co. No. 4 Sec. 9 Unit, C NE NW sec. 9-32n-5w. M.I.M. (first report).
Texas Co. No. 2 Hardwick, C NE SE sec. 17-32n-5w. Loc. (first report).
Texas Co. No. 1 Lennon, C NW SE sec. 24-33n-6w. M.I.M. (first report).
A. E. Wilkinson No. 3 All.-127, C SE SE sec. 1-32n-6w. R.O.G. (first report).
K. D. Pardee No. 1 Corrigeaux, NE NE SE sec. 35-34n-6w. Bldg. rig (first report).
Hanah-Porter No. 3 All.-130, NW SE SW sec. 6-32n-5w. Spdg. (first report).
A. R. Pardue No. 1 Anderson, C SE SW sec. 31-32n-5w. Spdg. 70 ft.
A. E. Crumley No. 2 All.-112, C NW SW sec. 6-32n-5w. Drlg. 410 ft.
Glacier Prod. Co. No. 2 O'Brien, C NW SW sec. 32-34n-5w. Spdg.
Texas Co. No. 3 Unit 9, C SE SW sec. 9-32n-5w. Drlg. 1,505 ft.
Nadeau Bros. No. 4 Farmers State Bank, CSL NE sec. 17-33n-5w. Drlg. 470 ft.
Santa Rita O. & G. Co. No. 1 Rasmussen, C NE SW sec. 32-33n-5w. Drlg. 900 ft.; Colo. 560 ft.; 10¾-in. at 427 ft.
Annand-Hutchings No. 3 Federal Land Bank, NE SE SW sec. 11-34n-6w. Drlg. 1,190 ft.; Colo. 505 ft.
R. E. Lee No. 1 Davis, C S½ SE sec. 15-32n-6w. Drlg. 760 ft.
Cut Bank Oil Trust No. 1 Yunck, SE SE SE sec. 23-34n-6w. Drlg. 1,760 ft.
Glacier Prod. Co. No. 2 Fuller, C NW SE sec. 17-33n-5w. T.D. 2,918 ft.; rng. 7-in.
Glacier Prod. Co. No. 1 Corrigeau, NW NW NW sec. 21-33n-5w. Cmtd. 7-in. at 2,925 ft. 150 sacks.
Dakota-Montana Oil Co. No. 1 Triabl-136, C NE NE sec. 15-34n-6w. T.D. 2,938 ft.; cmtd. 7-in. at 2,928 ft.; 600 ft. of oil.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. S.D. 1,400 ft.; Kootenai dry; will go to Madison.

Musselshell County

R. C. Tarrant and J. C. Johnson No. 24-A Govt., SW NW NW sec. 25-11n-24e. T.D. 465 ft.; R.U. to resume (formerly Geo. Gregory, et al).

Park County

Ben W. Ryan et al No. 1 Burgess, SE SW NW sec. 28-2s-11e. T.D. 606 ft.; prep. to resume.

Pondera County

Gordon Campbell No. 1 Hughes, NW NE NW sec. 12-30n-4w. T.D. 2,505 ft.; 1,400 ft. sulfur wtr. from 2,498-2,505 ft.; S.D.O.
Clinch Pet., Ltd., No. 1 Hollam, NW NW NW sec. 12-28n-6w. T.D. 2,200 ft.; resumed.

Phillips County

City of Malta No. 1 Govt., C SE SE sec. 18-30n-30e. Drlg. 1,150 ft.
R. G. Parrent No. 1 Hartman, C NW SE sec. 12-24n-25e. Drlg. 898 ft.

Petroleum County

O. B. Canfield No. 1 Govt., CEL SE NE sec. 21-17n-24e. Rng. 3-in. to set at 750 ft.

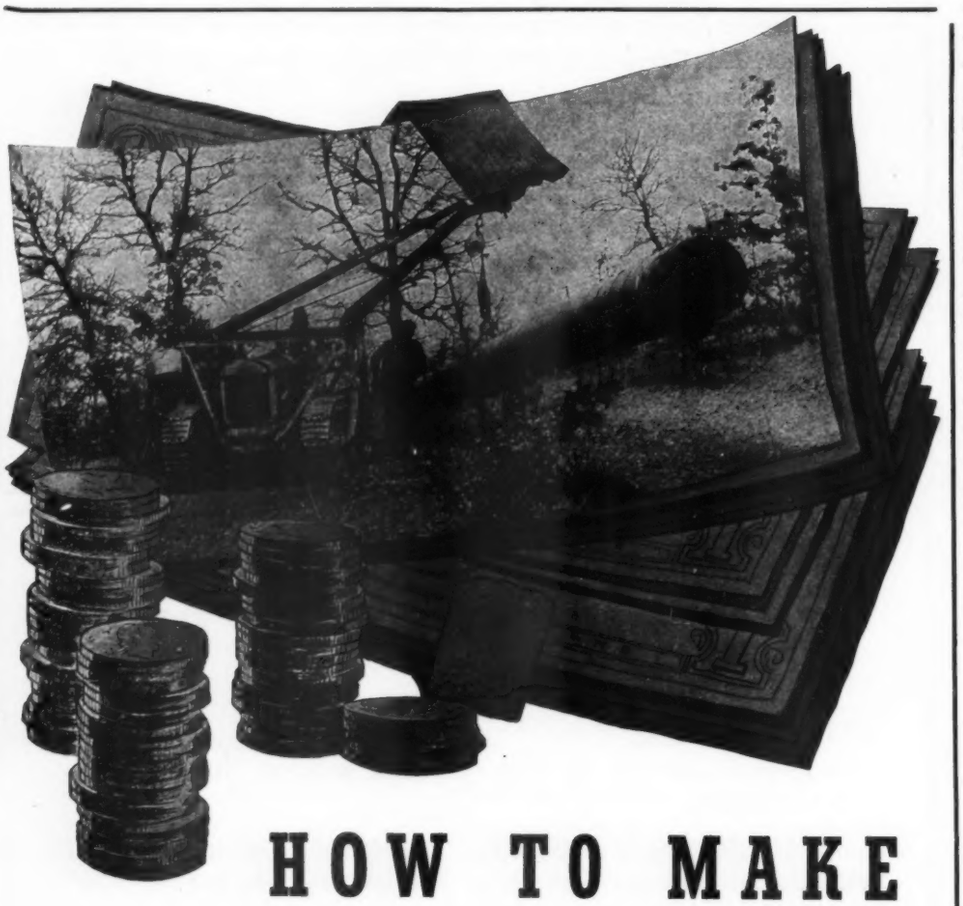
Toole County

There were two completions and five new operations in the Kevin-Sunburst field. Several wells drilled to the pay horizon were dry, but will be acidized.

Shaver Oil Co. No. 2 Shaver, SE SW NE section 11-34n-2w, made 25 bbls. per day after acidizing with 500 gallons. Pay was at 1,480-90 feet.

A. E. Crumley No. 11-A Shaw, SE NW NE section 35-36n-2w, made 75 bbls. per day initially on the pump at 1,577 feet in the Sunburst sand topped at 1,556 feet.

A. C. Crumley No. 12 Shaw, SE NE NW sec. 35-36n-2w. Rig. (first report).
A. C. Crumley No. 7 Jarrett, NE SE NE sec. 29-35n-2w. Rig. (first report).
Stanley Gray No. 1 Goeddertz, CWL NE SW sec. 12-35n-23w. Drlg. 440 ft. (first report).
A. C. Carney No. 2 Stockman, CSL NW NE sec. 11-35n-2w. Loc. (first report).
A. C. Carney No. 1 Stockman, CWL SE NE sec. 11-35n-2w. Spdg. (first report).
Security Oil Co. No. 1 Kopsing, CWL SW SE sec. 24-34n-2w. Loc. (first report).
Capitol Oil Co. No. 1 Pace, C SE SW sec. 27-36n-1w. R.U.
S. V. Day No. 3 Halter, NE NE NE sec. 17-35n-2w. Rig.
Consolidated Gas Co. No. 1 Northwest Exploration, SE SE NW sec. 29-35n-2w. Drlg. 600 ft.
S. F. Scotland, C NE SW sec. 29-35n-3w. Drlg. 150 ft.
B. Parrin No. 1 Hugh, SW NE NW sec. 11-35n-3w. Drlg. 830 ft.
Lamont Pet. Co. No. 1 Van Note, NE NE NW sec. 30-35n-2w. Contact 1,509-12 ft.; dry, will acid.



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Wm. Knight No. 2 Havland, CWL SE NW sec. 19-35n-2w. Drlg. 1,530 ft.
Twin Buttes Synd. No. 1 Thompson, NW NE NW sec. 33-35n-3w. Drlg. 1,650 ft.
Nepstad & Vanderpas No. 2 Solberg, SW NE sec. 29-35n-3w. Drlg. 1,040 ft.
Welch Bros. No. 2 Larum, SW SW NW sec. 25-35n-3w. T.D. 1,658 ft.; repairing engine.
Watson et al No. 2 Leach, SE NE NE sec. 31-35n-3w. Drlg. 840 ft. (C.D.).
Big West Oil Co. No. 7 Dahlquist, NW SE NE sec. 21-35n-3w. Sunburst, 1,550-70 ft.; 2,000,000 ft. gas; will save and D.D.
A. Beardslee No. 6 Swears, SW SE NW sec. 9-35n-2w. Drlg. 200 ft.
Browning-Sunburst 32 Synd. No. 1 Goeddertz, NW NW SW sec. 21-36n-3w. Drlg. 200 ft.
Agen & Kraus No. 1 Kraus, SE SE SE sec. 9-35n-3w. T.D. 1,821 ft.; contact 1,800 ft.; S.O.; will acid.
Wm. McKnight No. 2 Havland, CWL SE NW sec. 19-35n-2w. Contact 1,574-1,626 ft.; S.O.; will acid.
Rimrock Oil Co. No. 1 Govt., CEL SW NW sec. 29-35n-3w. Moving in material.
Shaver Oil Co. No. 3 Shaver, SW SE NE sec. 11-34n-2w. T.D. 1,490 ft.; contact 1,480 ft.; dry; acid. 500 gals.
W. S. Knight No. 1 Gunderson, SW SE NW sec. 9-35n-2w. S.D. in Ellis-Madison contact at 1,572 ft.
Bryant Bros. No. 1 Lashbaugh, NE SW NW sec. 34-25n-2w. T.D. 850 ft.; R.U. heavier machine to resume.
Ogden-Kevin Oil Co. No. 7 Zachot, SE SW NW sec. 20-35n-1w. S.D. 400 ft.

Yellowstone County

Western Dakota Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. R.U. machine (first report).
Broadview Dome Oil Co. No. 1, NE NE SW sec. 18-3n-23e. R.U.

UTAH

Daggett County

Mountain Fuel Supply Co. No. 1 Lauzier, CNL NW NW sec. 27-3n-24e. Drlg. 1,110 ft.

Emery County

Standard Oil Co. of California and Continental Oil Co. No. 1-A Palm, C NW NW sec. 27-23s-11e. Drlg. below 3,300 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. S.D. 6,715 ft.; M.I. heavier rot. equip.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Tstg. in Paradox below 7-in. at 4,132 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. M.I.M. and bldg. camp.

NEBRASKA

Sioux County

J. M. Huber Corp. and United Producers, Inc., No. 1 Morgan, C SW SW sec. 32-35n-56w. Drlg. 2,761 ft.

Dawes County

Stephens Oil Corp. No. 1 Palmer, C NW SW sec. 1-33n-50w. Drlg. plug; 8¼-in. at 2,300 ft.

Lincoln County

Smith & Wright No. 1 Hansen, C SW NW sec. 24-15n-31w. Drlg. 1,900 ft.

Central West Fields

(Continued from Page 138)

feet naturally. The same operator is spudding a second test. In section 32, Salisbury Township, Smith Oil Co. completed the test on the George Renshaw farm below the Maxon sand at 912-24 feet with an initial gauge of 291,000 feet which blew down to 250,000 feet while repairing after they had dropped the tubing. In section 26, Lebanon Township, Tierney & Co. No. 1 Daniel Keyse made 40,000 feet naturally, was shot with 20 quarts and abandoned when the shot failed to increase production. In section 31, same township, Meigs Development Co. is skidding rig and starting new hole on the Charles Curs Estate. The tools were lost at 1,550 feet and could not be recovered. In section 16, Bedfors Township, Ohio Fuel Gas Co. has abandoned the test on the H. B. Pickett farm. It was drilled through the Maxon sand at 863-88 feet and through the Keener sand at 895-914 feet. Both sands were dry.

In Johnson County, Francis and associates and James Webb and associates completed No. 1 James Wells on Daniel Creek with 331,000 feet at 2,435 feet. Evans Gas Co. is fishing for tools on the Sandy River Coal Co. land on Buffalo Creek at 2,850 feet. Ralph Stafford's operation on the Richard Turner farm on Buffalo Creek is idle. Spurlock and associates are moving on the Charles Hicks farm.

In Morgan County, Easterling Oil Co. completed No. 1 Wheeler Hammonds heirs in the Licking River district at 1,876 feet with Corniferous on the bottom with a flow of 116,000 feet.

In Knox County, Hughes & Main have shut down on Indian Creek and Henehar and associates have shut down on the Henry Mills farm on Stinking Creek at 1,000 feet.

In Elliott County, Haynes & Lyons, drilling on the James Evans farm in the Little Sandy district, have shut down at 400 feet.

Weir, foreman for Donahue, drilling in Caney district, reports a completion of 5 bbls.

In Wolfe County, Jim Hollon is down 1,700 feet in No. 1 George Lovelace on Trace Fork of Still Water. It was drilled about 30 years ago and was a good gas well. They expect to go 3,500 to 4,000 feet. A nice showing was found in the first sand.

WESTERN KENTUCKY

Twelve new oil wells and six dry holes constituted the completion record of the Western Kentucky fields in the past week, while 38 new wells were started and 14 others were preparing to start drilling. The report by counties and districts follows:

Hancock County

Patesville district: Ray Cooper No. 12 Gordon & Lynch, 5 bbls., Jett sand. Roy Beard No. 2 Jim Dunn, drilling.

Easton district: J. C. Ellis No 13 Link Richards, Jackson sand, 50 bbls.; No. 14 Link Richards, drill-

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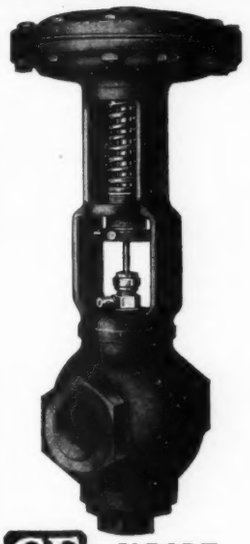
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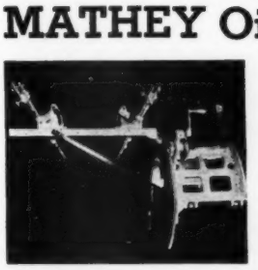
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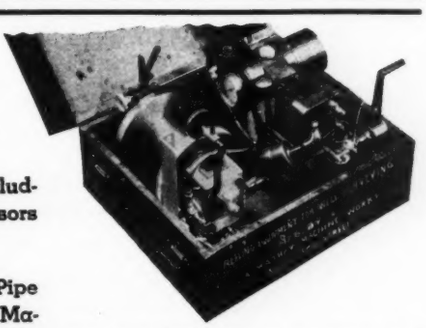
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ing; No. 7 H. D. Fuqua, Jackson sand, 75 bbls.; No. 8 H. D. Fuqua, Jackson sand, 50 bbls.; No. 9 H. D. Fuqua, drilling. W. E. Hupp No. 1 J. Easton, Jackson sand, 50 bbls.; No. 1 Matt Young, drilling.

Floral district: Cumberland Petroleum Co. No. 2 Joe Powers, drilling 410 feet.

Pellville district: O. D. Vickers and others No. 3 Mrs. M. O. Brown, drilling; No. 3 Mitchell Huff, drilling; No. 1 W. D. Richardson, location.

Ohio County

Fordsville district: Interstate Oil & Gas Co. No. 2 Sam Gaines, dry hole at 242 feet through Jett formation. H. Vickers and others No. 9 W. C. Richard's Heirs, moving in. Clark & Snyder No. 1 W. E. Hedden, drilling. Interstate Oil & Gas Co. No. 4 A. Brunnell, drilling.

Friendship Church district: South Penn Oil Co. No. 8 F. L. Royal, drilling. Chester Oil Co. No. 2 John McCarthy, dry hole, 825 feet. Fred J. Young and others No. 10 Oscar Whitehouse, drilling; No. 2 Elbert Farmer, location.

Ralph district: A. Ford and others No. 1 R. P. Ralph, drilling. Snowden & McSweeney No. 25 Howard Heirs, 15 bbls.

Adaburg district: Schaffer and others No. 3 Joe Helm, shut down 515 feet. Bates, Black and others No. 2 Basil Taylor, drilling. Sherman Hall No. 1 W. Whittaker, drilling. Rex-Pyramid Oil Co. No. 13 Len Stinnett, moving in. W. E. Hupp No. 7 S. H. Easton, dry hole. Western Kentucky Petroleum Co. No. 27 Mary Elmore, drilling. Chester Oil Co. No. 2 E. M. Howard, drilling.

Dundee district: Globe Oil Co. No. 18 Rommey Graham, drilling. Carpenter and others No. 6 Mrs. S. Thomas, location. New Deal Oil & Gas Co. No. 9 O'Dell Heirs, Jackson sand, 40 bbls. Jay Petroleum Co. No. 1 Babbitt Heirs, drilling. Doc Sernan No. 4 J. B. Mitchell, rigging up.

Taffy district: J. C. Ellis No. 14 J. T. Hoagland, dry. Brunner and others No. 3 W. C. Hoover, drilling. George Hogue and others No. 2 Anna W. Hoover, drilling.

Buford district: Cumberland Petroleum Co. No. 17 S. L. Lloyd, location.

Heflin district: J. C. Ellis and others No. 2 James Heifner, dry hole, total depth 1,110 feet, drilled to top of Mississippi lime. Thomas Galey and others No. 5 J. W. Smith Heirs, drilling. Carpenter and others No. 1 Oscar James, shut down 1,200 feet, high water.

McLean and Ohio Counties

Hardin pool: Carpenter and others No. 1 Wm. Hardin Heirs, 112 acres, shut down 150 feet, high water. W. E. Hupp and others No. 1 L. W. Tichenor, shut down 750 feet, high water. Carpenter and others No. 4 Wm. Hardin Heirs, Tract 1, 75 bbls., Jett sand, total depth 1,148 feet. W. E. Hupp and others No. 16 Hackett Brothers, 75 bbls., Jett sand, total depth 1,138½ feet; No. 17 Hackett Brothers, rigging up. Petroleum Co. No 4 Cullen, drilling 570 feet; No. 5 Cullen, spudding in; No. 6 Cullen, moving in. J. C. Miller and others No. 3 Austin & Cullen, drilling 300 feet; No. 4 Austin & Cullen, rigging up; No. 5 Austin & Cullen, moving in W. E. Hupp and others No. 1 John A. Givens, rigging up. Clark & Snyder No. 2 Barnett Heirs, shut down, high water. Culbreth and others No. 1 T. E. Howell, drilling.

Daviess County

Pellville district: O. D. Vickers and others No. 4 Eli Carder, location. Leper Oil Co. No. 8 C. D. Veach, 25 bbls.; No. 9 C. D. Veach, pressure well; No. 10 C. D. Veach, dry hole. Rex-Pyramid Oil Co. No 1 John Cooper, moving in.

Habit district: H. A. Henry and others No. 1 Miller Taylor, dry hole 1,004 feet.

Cane Run School district: Kentucky Producing Corp. No. 3 E. L. Omstott, drilling 400 feet.

Red Hill district: Washburn & Cox No. 6 Del Salmon, dry hole 1,274 feet. H. C. Davis and others No. 6 Herbert Salmon, drilling. Globe Oil Co. No. 3 W R. Russell, location.

McLean County

Livermore City lot: Major Oil Co. No. 1 Clifton Mack, 15 bbls.

Nuchols district: J. C. Miller and others No. 2 James Snyder, dry hole, total depth 630 feet through Stray sand.

Knobs district: Wickland Development Co. No. 2 Jake Conrad, location. Cumberland Petroleum Co. and others No. 7 Elmer Nall, shut down 1,562 feet, high water. A. D. Noe and others No. 1 Eaves Barrett, underreaming at 1,870 feet.

Hopkins County

Slaughters district: Imperial Oil & Gas Co. No. 1 Archibald Estate, drilling 1,560 feet.

Henderson County

Niagara district: Jay Petroleum Co. No. 2 T. J. Bond, Jr., 15 bbls.

Breckenridge County

Falls of Rough district: A. V. Smith and others No. 1 T. P. Fuqua, drilling.

Glen Dean district: F. Douthitt and others No. 1 W. R. Moorman, location.

EASTERN KENTUCKY

Several completions are reported in Eastern Kentucky and several wells have reached a point where drilling is expected to halt at any time. Several repressuring projects are in operation without a great deal of increase in production being noted. Ashland Oil & Refining Co. is repressuring on the J. E. Conley, Millard Blanton, Gardner Blanton and W. P. Whitten farms and Paintsville Oil & Gas Co. is repressuring on the J. I. Gullett farm. H. L. Skidmore and others are using the air on their well on the W. B. Bailey lease. These farms are all in the Falcon Springs district in Magoffin County and the air is being purchased from the Paintsville Oil & Gas Co.

In Martin County, Warfield Natural Gas Co. reports No. 4714 Mose Maynard in the Tug Fork district completed in Devonian shale at 2,798 feet with 488,000 feet of gas. Its No. 4703 M. B. Collingsworth on Clay Fork of Right Fork was completed in Devonian shale at 2,967 feet with 431,000 feet of gas. Its No. 4716 Samuel Robinson in the Rockcastle district was completed at 2,701 feet with 50,000 feet, and No. 4726 J. E. Cassaday in the Coldwater Fork district at 2,749 feet with 67,000 feet. No. 4727 Nancy Cornette Layne is at 1,674 feet. No. 4729 J. R. Fairchild and others on Calf Creek of Tug River is at 70 feet, with No. 4728 on Right Fork of Calf Creek down 1,230 feet. Warfield has secured a location on the Vina Maynard land in the Coldwater Fork district. United Carbon Corp. No. 1 William Martin in the Peter Cave Branch district is being spudded. Southeast Gas Co. is drilling at 2,500 feet on the Bascom Preston farm on Rockhouse Fork after a 244,000-foot completion on the Henry Hopson farm at 2,603 feet.

In Knott County, Troublesome Creek district, Warfield Natural Gas Co. No. 4715 S. D. Maggard has reached 2,820 feet. Its well on the J. W. Duke farm is down 2,106 feet. Its well on the Dock Maddin farm in the Irishman Creek district is at 810 feet and its well No. 4734 W. O. Ziebold on Mallet Branch at 260 feet deep. Inland Gas Co. No. 187 E. A. Hammonds in the Troublesome Creek district has reached slate at 442 feet and Inland is rigging up No. 2 R. C. Kilgore. No. 1 Kilgore was completed in Devonian shale at 2,909 feet with 602,000 feet of gas. Inland's No. 185 S. B. Webb on Jones Fork of Right Beaver was completed in Big Injun shale at 1,964 feet with 1,048,000 feet of gas. No. 188 is down 909 feet.

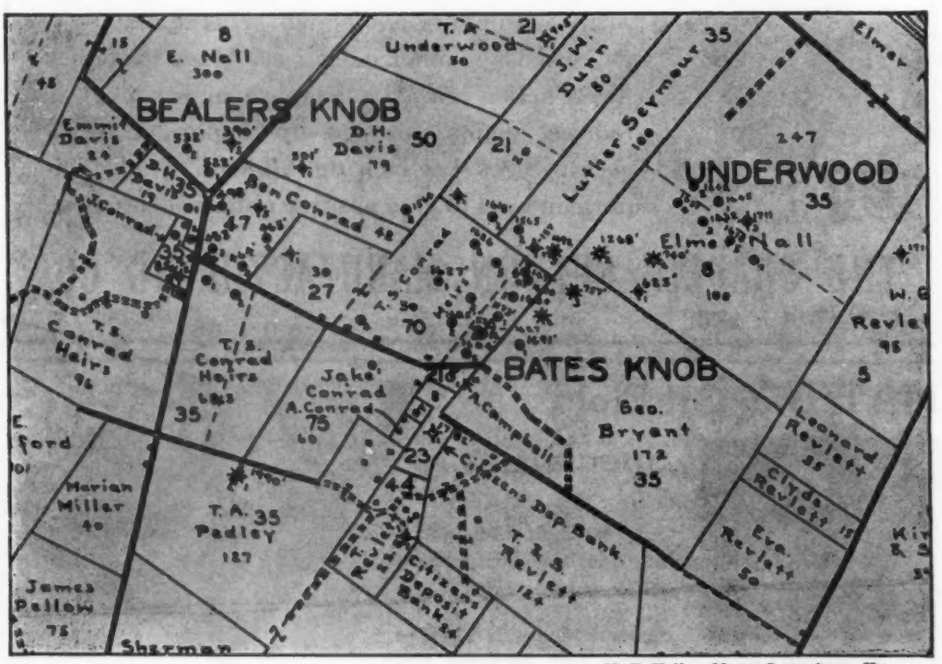
Hamilton Gas Co. has a location on the Alice Stewart land in the Caney Creek district and a location on the John P. Maddin heirs lands in the Irishman Creek district. United Carbon No. 11 Kycoga on Nealey Creek is down 700 feet.

Son Hall has two operations with one completion on the H. H. Smith farm in the Troublesome Creek district. Shale was reached at 2,714 feet with 165,000 feet. No. 2 Mac Sturgill on Perkins Branch is at 1,400 feet.

In Floyd County, Warfield Natural Gas Co. No. 4696 R. P. Stratton on Levisa Fork is at 1,986 feet. No. 4718 F. W. Newsom on Branham Creek is at 2,867 feet. No. 4719 John W. Harris in the Brandy Keg district is at 311 feet. No. 4720 Belle Porter on John Creek is at 2,060 feet, and No. 4722 G. W. Mayo in the Brandy Keg district was completed in the Devonian shale at 2,385 feet with 116,000 feet of gas. The company completed No. 4723 Maudie Clark on Buffalo Creek with 134,000 feet of gas in Devonian shale at 2,792 feet. No. 4725 Malcom Ward on Johns Creek is shut down at 2,500 feet for a shot. Warfield has secured location on the Angie Hunt farm on Buffalo Creek of Johns Creek.

Inland Gas Co. has abandoned No. 179 Harve Spears on Buffalo Creek at 225 feet. Fred Williams reports a completion on Mrs. Woods land near Betsy Layne with 2,000,000 feet of gas in top of the Big Lime Mississippi at 1,510 feet, and another completion on the Stanley heirs land, No. 5 on the Levisa Fork, top of Devonian shale at 2,790 feet, with 100,000 feet of gas. McIntosh is drilling on the Morgan Layne farm on the Levisa Fork at 1,430 feet.

Lawrence Keathley is moving in on the William S. Goble farm in the Brandy Key Creek district. H. C. Francis and associates have secured a location on the William Jones farm on Camp Branch.



H. E. Keller, Maps, Owensboro, Ky.

The Knobs district in McLean County, one of the newer fields in northwestern Kentucky not yet defined as to area. Producers names are indicated on the map by numerals as follows: No. 5, B. & B. Oil Co.; 8, Cumberland Petroleum Co.; 12, J. C. Ellis; 21, Helt and others; 23, W. E. Hupp and others; 27, Ivyton Oil & Gas Co.; 35, Knobs Syndicate; 44, Marietta Oil Co.; 47, J. C. Miller, trustee; 50, Nollem Oil & Gas Co.; 54, Polhumas; 56, George Randolph; 61, Sargeant and others; 62, Sunflower Oil & Gas Co.; 65, Scottie; 70, Thirteen Syndicate; 75, Wickland Development Co.

California Field Report

WILMINGTON FIELD NEARING OBLIGATORY CURTAILMENT

By
L. P. STOCKMAN

LOS ANGELES, Calif., May 17.—The Wilmington field of Los Angeles Basin, due to aggressive development, is approaching the point where curtailment will become obligatory if operators are to receive a normal return on invested capital. Production, approximately 36,000 bbls. per day, due to limited outlets is being sold in many instances at or below 65 cents. Only General Petroleum Corp. and Richfield Oil Corp. have made pipe line connections into the field and neither has made any extensive commitments with the possible exception of Union Pacific Railroad, Bankline Oil Co. and a few other producers. Major buyers would undoubtedly make purchase commitments if operators agreed to conform to the curtailment program, under supervision of the Central Committee of California Oil Producers and Umpire J. R. Pemberton.

There is very little likelihood major companies will extend pipe lines into the field until a definite proration plan has been worked out and some tangible evidence of curtailment presented. However, the crude is an inferior grade from a refining standpoint due to the absence of the lighter fractions and a sulfur content of approximately 2½ per cent. The field's potential will show a substantial increase within 90 days, and smaller refiners will be unable to purchase and refine the quantity involved. The field has a daily quota of 13,460 bbls. for May and is producing in excess of 36,000 bbls. at present.

Development Work

Although the field is within the corporate limits of Los Angeles, it appears probable the electorate of Long Beach will lift restrictions and permit operators to develop acreage immediately adjacent to present productive leases. Union Pacific Railroad Co. No. 10 Offset and No. 4 Offset as well as Nos. 1 and 2 Ford of General Petroleum Corp. are in close proximity to the Long Beach and Los Angeles line. The limits of production have not been established in the eastern end due to restrictions. Assemblyman John O'Donnell has introduced a bill in the legislature for an investigation of the state's mineral rights in the tidelands adjoining the field. The bill proposes a board to quiet titles and to determine if mineral rights exist. The board would be empowered to consummate leases on the basis of 20 per cent royalties where the state has an interest.

New Wells

Eight new wells were completed in the field during the week, an average of one well per day. Drilling is increasing faster than completions. Macmillan Petroleum Corp. completed its initial producer, No. 1 Hayes, flowing 690 bbls. of 17.9 gravity and 130,000 feet of gas from 3,595 feet. It was completed with 370 feet of 80-mesh screen and the 8⅝-inch was cemented through perforations at 3,225 feet. Bankline Oil Co. has completed No. 1 Chuck flowing 295 bbls. of 19.2 gravity and No. 12 P.T.C. flowing 361 bbls. of 17.8 gravity. The former was bottomed at 3,442 feet and finished with a 6⅝-inch perforated liner; the latter at 3,450 feet with a 6⅝-inch liner after the hole had been plugged back from 3,579 feet.

Union Pacific Railroad has completed No. 18 Offset and should have several additional potential producers within a fortnight. Its new producer, flowing 782 bbls. of 19.1 gravity from 3,483 feet, has 490 feet of 60-mesh screen. General Petroleum Corp., discoverer of the field, completed No. 1 Interstate flowing 426 bbls. of 17.1 gravity cutting 5 per cent from 3,550 feet. It is flowing through a one-half inch bean under a casing pressure of 250 pounds and may show a substantial reduction in the cut. George F. Getty, Inc., No. 9-W completed flowing 325 bbls. of 19.9 gravity from 3,352 feet, was finished with 301 feet of 8⅝-inch liner including 275 feet of perforated. Olympic Refining Co. No. 1 fee completed on the beam doing 180 bbls. of 17.5 gravity from 3,510 feet was finished with 303 feet of 6⅝-inch liner including 263 feet of 100 mesh. Wilmington Oil & Development Co. No. 3-W is flowing 620 bbls. of 17.3 gravity through a 20/64-inch bean from 3,545 feet.

Gas Fields

Standard Oil Co. has completed No. 3 McDonald Island in the McDonald gas field of San Joaquin County, section 24-2-4, showing a potential daily production of 6,600,000 feet of dry gas from 5,337 feet. In the Rio Vista gas field of Solano County, Amerada Petroleum Corp. conducted a potential test on No. 2 Emigh in section 26-4-2, and found it good for 41,500,000 feet of dry gas from 4,505 feet. No. 2 Emigh showed 1,690 pounds on the tubing and 1,510 pounds on the casing. Amerada is expected to complete No. 1 Marks within a few weeks, as this well, in section 24-4-2, has passed 4,300 feet. Ohio Oil Co. staked location for No. 8-A in the Buena Vista gas field of Kern County a few weeks ago but work has not yet been started on this test in section 32-31-26.

Greeley-Ten Section

Standard Oil Co. has severely curtailed No. 11-3 Kern County Land, completed last week flowing 3,540 bbls. of 47.1 gravity and 43,000,000 feet of gas from 7,820 feet, and may possibly suspend production. No. 12-1 Kern County Land in section 30-29-26 should be tanking oil within a day or so. Bottomed at 7,885 feet, the hole was finished with 159 feet of 6⅝-inch aluminum liner including 123 feet of perforated. Mohawk Petroleum Co. has abandoned No. 1 Kern County Land as a duster at 8,443 feet. This test, in section 23-29-25, a few miles west of Standard Oil Co. discovery well in the Greeley field, hit a gray water sand at 8,406 feet.

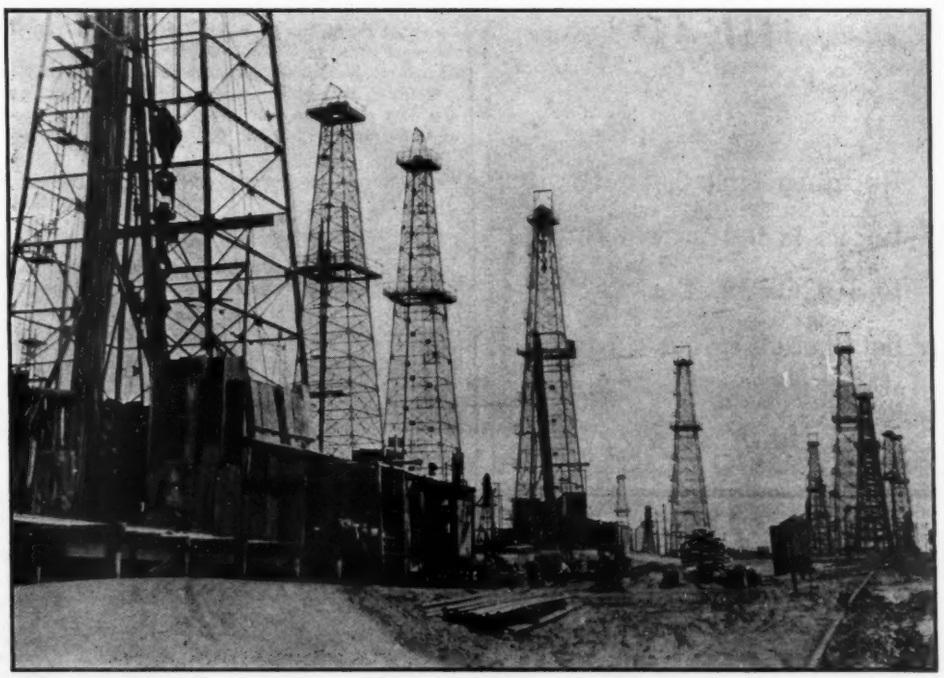
In the Ten Section field, Shell Oil Co. completed No. 23-A Kern County Land, flowing 2,788 bbls. of 31.7 gravity and 2,592,000 feet of gas from 8,219 feet. It was brought in flowing through two 1-inch beans under a tubing pressure of 150 pounds and a casing pressure of 250 pounds, was finished with a 4¾-inch liner carrying 304 feet of 100 mesh. No. 23-A Kern County Land was carried to 8,295 feet but plugged back to completion depth, 8,219 feet. The joint test of Union Oil Co. and Superior Oil Co. has reached 11,761 feet, but this outpost, No. 8 Kern County Land, in section 11-30-26, has not yet logged encouraging showings. Ohio Oil Co. No. 2-E Kern County Land, a wildcat between the Greeley and Ten Section fields in section 6-30-26, has passed 2,000 feet.

Round Mountain

Eastmont Oil Co., which apparently discovered a field east of the Round Mountain field of Kern County, has recompleted No. 1 Olcese in section 16-28-29. Shut down immediately on completion it has been recompleted pumping 20 bbls. per hour from 1,895 feet. The company has staked location for No. 2 Olcese, center of section 16-28-29. In the Round Mountain field, Shell Oil Co. has completed No. 1-10 Olcese in section 17-28-29 pumping 481 bbls. of 16.7 gravity from 1,878 feet. It may show a substantial increase. No. 13 Freeman on a production test pumped 321 bbls. of 16.9 gravity. Shell has one incompleted project, No. 1-11 Olcese, in the pay at 1,870 feet. Wells are drilled within two weeks. Honolulu Oil Corp. is finishing No. 33 in section 18-28-29 at 2,037 feet.

Mount Poso

Drilling in Mount Poso is facilitated by a relatively soft formation. Shell Oil Co. completed No. 32 Vedder pumping 509 bbls. of 15.6 gravity from 1,689 feet. It is in section 9-27-28 and was finished with 58 feet of 6⅝-inch liner including 35 feet of perforated. It is expected that the production will be increased after the well has been on production a few days and given a potential



Union Oil Co. No. 50 Callender in Dominguez field discovered new zone at 10,435 feet. Adjoining wells are producing from different zones

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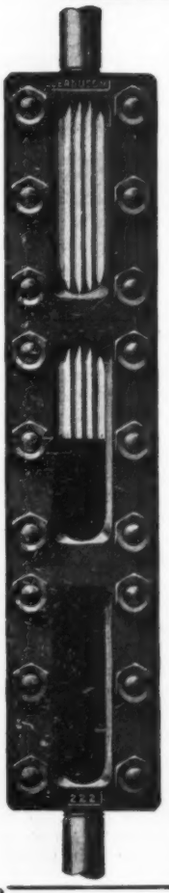

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test, as No. 31 Vedder on a potential test pumped 794 bbls. of 16.4 gravity. Shell is building rigs for two additional wells in the Round Mountain field. No. 12 Vedder-Rail should be completed within a fortnight. In the Dominion section of Mount Poso, Recovery Oil Co. completed No. 2 pumping 51 bbls. of 14.2 gravity cutting 17 per cent from 1,409 feet.

Gato Ridge

In the Gato Ridge field of Santa Barbara County Barnsdall Oil Co. No. 6 Tognazzini was brought in pumping 625 bbls. of 14.1 gravity from 2,515 feet, while No. 8 Tognazzini tanked 970 bbls. of 14.3 gravity at 2,625 feet. Moyle Petroleum Co. has started bailing No. 1 in section 4-8-32 following completion at 3,225 feet. The well was finished with 1,135 feet of 8⅝-inch liner including 790 feet of perforated. Stewart-Carter Oil Co. picked up the top of the Monterey in No. 1 Wickenden in section 4-8-32 at 2,542 feet and has another 500 feet to make.

Lost Hills-Belridge

Belridge Oil Co. extended the productive limits of the North Belridge field by completing No. 62-27 in section 27-27-20 flowing 390 bbls. of 35.2 gravity and 10,000,000 feet of gas from the Wagonwheel zone at 8,590 feet. The output is still showing a cut in excess of pipe line requirements but may clean up. No. 62-27 was finished with 833 feet of 4½-inch liner including 426 feet of 250 mesh and was cemented through perforations at 8,151 feet. Belridge Oil Co. has three other incompleted drilling projects under way and schedules call for completion of No. 21 in section 1-28-20 by June 15. Texas Co. resumed drilling a week or so ago in No. 1 Martin, an outpost in Belridge, is cleaning out and should resume at 5,048 feet shortly. Associated, Texas and Standard, which have been developing shallow production in the extreme western end of the Lost Hills field, have temporarily suspended development but will resume in the near future as Texas Co. has a rig standing for No. 3 Theta in section 11-26-20 and Associated has No. 9-R-3 Williamson in section 2-26-20 rigged up.

El Segundo

Union Oil Co. No. 2 Security, finished a few days ago flowing 570 bbls. of 27.2 gravity and 150,000 feet of gas from 7,636 feet, did not improve the outlook in the southern part of the field, especially as the company's No. 1 Security showed evidence of edgewater. Interest in the El Segundo field centers around Texas Co. No. 2 Security, Richfield Oil Corp. No. 5 El Segundo, and Republic Petroleum Co. No. 8 El Segundo, all near to Texas Co. No. 1 Security, which showed the largest initial daily production and is still producing 2,265 bbls. of 27.1 gravity. Richfield Oil Corp. has acquired approximately 30 acres of subdivided acreage west of Ohio Oil Co.'s Gough lease and north of Standard Oil Co.'s refinery in the El Segundo field and has started rig construction for No. 1 Elsie. Richfield's new outpost is approximately 1,500 feet northwest of Texas Co. No. 1 Security, the largest producer. In the southern part and west of the two wells drilled on the Security lease by Union Oil Co., Richfield Oil Corp. cored only 8 feet of oil sand before hitting the schist in No. 1 Santa Fe. This well, on the station site of the Santa Fe Railway, topped the oil conglomerate at 7,614 feet and was bottomed below the top of the schist at 7,640 feet. It is customary to drill into the schist until the main body has been reached, as the uppermost 10 feet or so is fractured and contaminated with oil from the immediately overlying conglomerate.

Los Angeles Basin

In the Huntington Beach field Richards & Rowan have recompleted No. 2 Severns after redrilling and deepening to 4,861 feet where it was returned to production pumping 148 bbls. of 24.5 gravity. In the Long Beach field Hilltop Oil Co. completed No. 1 Signal pumping 40 bbls. of 25.9 gravity from the shallow zone at 2,523 feet. In the Torrance field John Abrams No. 1 Torrance which came in under a natural flow a week or so ago is being prepared for a pumping test with indications of at least 200 bbls. per day. In the Santa Fe Springs field Hathaway Co. recompleted No. 2 Hathaway pumping 72 bbls. of 27.6 gravity cutting 20 per cent per day from 4,615 feet. Universal Consolidated

S. L. Gillan, Los Angeles geologist and engineer

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	May 6		April 29			
Intercoastal-domestic:	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Diesel and gas oil	.....	.....	.....	.....	176,726	151,541
Gasoline	7,950	1,136	82,177	11,740	996,676	2,293,411
Kerosene	65,010	9,287	.....	.....	130,040	505,419
Foreign exports:						
Crude oil	185,460	26,494	318,196	45,457	4,740,833	3,375,609
Fuel oil	170,181	24,312	506,639	72,377	4,882,229	3,451,338
Diesel and gas oil	345,981	49,426	123,820	17,689	2,527,364	1,696,151
Gasoline	90,761	12,966	.....	.....	2,496,611	2,046,702
Kerosene	.....	.....	.....	.....	894,236	380,593
Other unfinished oil	.....	.....	.....	.....	290,354	13,375
Coastwise-domestic:						
Crude oil	.....	.....	266,961	38,137	2,218,300	2,378,829
Fuel oil	365,561	52,223	437,506	62,501	5,239,222	3,096,301
Diesel and gas oil	45,970	6,567	19,583	2,798	917,052	507,701
Gasoline	262,447	37,492	201,680	28,811	4,230,897	4,750,048
Kerosene	9,960	1,423	.....	.....	67,347	85,379
Naphtha distillates	.....	.....	.....	.....	.....	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	152,392	.....
Gasoline	.....	.....	.....	.....	25,778	71,960
Asphalt	65,790	9,399	.....	.....	65,790	60,950
Lubricants	.....	.....	.....	.....	6,848	18,129
Foreign exports:						
Crude oil	150,045	21,435	.....	.....	1,057,394	1,031,374
Fuel oil	47,411	6,773	18,704	2,672	657,730	1,198,294
Diesel and gas oil	42,568	6,081	.....	.....	1,043,880	302,931
Gasoline	277,842	39,692	.....	.....	2,072,876	1,119,219
Kerosene	33,868	4,838	.....	.....	285,903	243,420
Lubricants	7,774	1,111	.....	.....	242,405	100,767
Coastwise-domestic:						
Fuel oil	76,291	10,899	116,236	16,605	2,091,047	2,711,010
Diesel and gas oil	36,212	5,173	.....	.....	233,520	194,950
Gasoline	81,475	11,639	29,247	4,178	1,465,096	1,622,426
Kerosene	18,797	2,685	5,971	853	66,108	55,772

Oil Co. recompleted No. 1 Pasadena in the eastern extension of the Montebello field resulting in the finishing of a well flowing 1,160 bbls. of 37.8 gravity and 1,800,000 feet of gas from 5,865 feet. Redrilled to the top of the Nutt zone it was finished with 522 feet of 6⅝-inch liner carrying 125 feet of perforated and cemented through perforations at 5,740 feet.

Kern River

Three new wells were completed in the Kern River district but none large. California Star Oil Co. No. 7-80 in section 22-28-27 was finished pumping 201 bbls. of 14.3 gravity cutting 7 per cent from 2,670 feet. The crew was moved to No. 8-40. Kern River Oilfields Co. completed No. 25-2-B pumping 158 bbls. of 14.5 gravity cutting 30 per cent from 2,051 feet and does not show much improvement as the sand appears to be wet. Tide Water Associated Oil Co. No. 7 in the Premier section in section 4-28-27 showed an initial of 198 bbls. of 16.4 gravity from 2,777 feet. This hole was originally carried to 2,787 feet but was plugged back and finished with a 6⅝-inch liner carrying 129 feet of perforated.

In the Midway-Sunset field Quality Oil Co. has completed No. 5 W. P. in section 27-32-23 tanking 249 bbls. of 16.5 gravity on the pumping test at 2,250 feet. Linderman Oil Co. No. 1 in section 22-32-23 pumped 25 bbls. from 2,135 feet but the outpost appears wet. In the Mountain View field of Kern County, General Petroleum Corp. completed No. 1 Freeport in section 19-30-29 and improved the outlook for this section. No. 1 Freeport was brought in flowing 371 bbls. of 27.4 gravity from 4,852 feet. The hole was finished with a 6⅝-inch liner including 302 feet of 120 mesh. In the Ojai section of Ventura County St. Louis Oil Co. completed No. 3 Pirie pumping 100 bbls. of 20.1 gravity from 1,360 feet and in the Sespe section of Ventura County Merchants Petroleum Co. completed No. 7 in section 1-4-20 pumping 400 bbls. of 15.3 gravity from 980 feet with the hole open below the 12½-inch water string landed at 548 feet.

Oklahoma Fields

(Continued from Page 152)

bbl. of oil and 4 bbls. of water in 24 hours and was completed at 2,731 feet, total depth. J. L. Reynolds No. 13 Hamilton, NW SW NE section 24-20-8, an old well, was deepened from 1,154 feet to Layton sand at 1,158-67 feet, total depth, pumped 2 bbls. of oil and 4 bbls. of water daily, recompleted.

Two new operations in Pawnee County were reported: E. O. Platter No. 3 Bunch, NW SW SW section 4-20-9, drilling at 250 feet; Tuttle Oil & Gas Co. No. 1 Degner, SE NE NE section 22-20-7, had a hole full of water at 1,025 feet, but was not completed.

Wagoner County

Wright & Kunkle No. 1-A Burris, C W half SE section 4-16-15, Wagoner County, was dry and abandoned at 1,235 feet, total depth. Sands Petroleum Co. No. 1-A Sarty, NW NE SW section 8-17-16, was abandoned at 1,024 feet, total depth.

Pottawatomie County

Hilton Phillips No. 4 Bettis, SE SW SW section 21-7-4, Pottawatomie County, topped Viola lime at 4,035 feet; Simpson Dense 4,122 feet; Wilcox sand 4,297 feet; total depth, 4,301 feet; plugged back to 4,157 feet, acidized, swabbed 240 bbls. of oil net in 24 hours, and pumped 225 bbls. of oil and an estimated 400 bbls. of water in 24 hours, completed.

Two new tests in Pottawatomie County were reported. TiLico Oil Co. No. 1 Hulsey, SW SE SW section 26-7-4, was rigging up rotary. E. W. Jones and others No. 1 Green, SE SE NE section 35-7-4, was waiting on cement at 90 feet.

Southwestern Oklahoma

In Jefferson County, Palmer and others No. 2 Barrett, SE SW SW section 19-6s-5w, had first oil sand at 1,480 feet and was completed as a 50-bbl. pumper at 1,522 feet, total depth. Farlyn Oil Co. No. 40 Seay, SE SW NW SE section 3-7s-5w, was completed as a 10-bbl. producer at 1,273 feet, total depth. Same company's No. 42 Seay, NW SW SE section 3-7s-5w, was completed as a 12-bbl. producer at 1,095 feet, total depth. Gulf Oil Corp. and others No. 1 Woodworth, NW NW NE section 20-3s-4w, wildcat, topped Arbuckle lime at 2,660 feet and was dry and abandoned at 3,117 feet, total depth, in lime.

In Stephens County, Carl Carter No. 7 Harley, NE SE NE section 24-2s-4w, was completed as a 6-bbl. pumper after plugging back from 1,011 feet, total depth, to 438 feet. Ed Parson and others No. 1 Blake, C SW NW section 22-2n-8w, was location for a 6,000-foot wildcat southwest of Marlow. Earl W. Stephens No. 3-A fee, NE SW SW SW section 3-2s-5w, was estimated as a 7-bbl. well at 993 feet, total depth, and was rigging up to pump. Carl Carter No. 8 Harley, NE NE SE NE section 24-2s-4w, was drilling at 388 feet.

Two producers in Cotton County were completed. Shasta Oil Co. No. 20 Patterson, SE NE NW section 1-2s-10w, was a 20-bbl. pumper at 2,217 feet, total depth. Same company's No. 21 Patterson, NW NE NE NW section 1-2s-10w, was a 13-bbl. pumper at 2,203 feet, total depth.

In Jackson County, Gulf Oil Corp. No. 4 Edwards, SE NE SE section 3-1n-20w, Altus pool, swabbed 87 bbls. of oil in 9½ hours from Granite Wash and was completed at 1,555 feet, total depth. G. L. Scheig No. 2 McCarty-Cole, NE SE SW section 34-2n-20w, was dry and abandoned at 1,786 feet, total depth. Gulf Oil Corp. No. 2 McDaniel, SW SW NE section 3-1n-20w, had dug cellar and pits.

Miscellaneous First Reports

Deep Rock Oil Corp. No. 2 Echo Hawk, NW SW NE section 4-18-5, Payne County, an old well, was rigging up standard tools to deepen. Magnolia Petroleum Co. No. 10 Main, SW NW NW section 34-19-4, an old Payne County well, was deepened from 2,784 feet to sand at 3,895-3,908 feet, but not completed.

In Lincoln County, Skelly Oil Co. No. 2 West Sporn, NE NW SW section 21-17-3e, had built rig corners. Cimarron Oil Corp. No. 1 Ornor, C SW SE section 31-17-2e, wildcat, was a location.

In Hughes County, Pittsburgh Pipe & Supply Co. No. 2 Fish, SE SW NW section 20-7-8, was building rig.

Cox & Hamon No. 1 Norton, SW NW SE section 32-1n-3w, Tussy area, Garvin County, had dug cellar and pits.

East Texas Fields

(Continued from Page 136)

R.R., 5,310 feet, plugged back to 5,283 feet, 273 bbls. in 24 hours, some water.

Angelina County

Hicks and others No. 1 Cope heirs, dry and abandoned 2,202 feet.

Cherokee County

A. F. Richardson No. 1 F. P. O'Brien, abandoned location.

Franklin County

Byrd-Frost, Inc. No. 1 E. Phillips, 4,298 feet, 130 bbls. per day.

Henderson County

Fred M. Allison Production Co. No. 2 Pettiette, 4,094 feet, 174 bbls. in 24 hours through one-half inch choke.

Houston County

E. B. Germany and others No. 1 E. M. Young, dry and abandoned 2,217 feet. Ridgeway and Jackson No. 2 Moore, abandoned derrick.

Hunt County

Penn Oil Corp. No. 1 R. B. Parish, 7 miles northeast of Lone Oak, dry and abandoned 6,502 feet, elevation 597 feet.

Lamar County

Cooper Brothers and Sallee No. 1 L. P. Hayes, dry and abandoned 2,768 feet, elevation 458 feet. Lowery and Cutler No. 1 E. C. Porter, dry and abandoned 1,647 feet, elevation 421 feet, 2 miles northeast of Chicota.

Titus County

Byrd-Frost, Inc. No. 4 Harper, 4,122-4,229 feet, 300 bbls. on pump. Hollandsworth Drilling Co. No. 3 Morris, 4,325 feet, 200 bbls. swabbing and flowing. Humble Oil & Refining Co. No. 3 Davis, 4,343 feet, 343 bbls. on pump; No. 1-B Hargrove, 4,186-4,337 feet, 301 bbls. on pump; No. 37 King, 4,321 feet, 306 bbls. on pump. Tide Water Associated No. 2 Carr, 2,817 feet, abandoned.

Van Zandt County

Humble Oil & Refining Co. No. 1 L. K. Riggs, junked and abandoned 4,664 feet, elevation 465 feet. Stroud and Lowe No. 1 Crim, 1,262 feet, 2 bbls. per day on pump; No. 1 Luther, 1,151 feet, 1 bbl. per day on pump.

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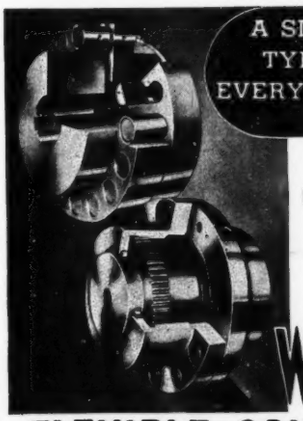

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RODESSA EXTENSION WELL IS LIKELY TO INDUCE DRILLING

By MITCHELL TUCKER

SHREVEPORT, La., May 17.—Completion of the Hunter Co. No. 1 Fonda, which appears to be the largest well yet drilled in the 12-mile extension area southwest of the Rodessa field into Marion County, Texas, again focuses attention upon this promising region. Ten new completions in the Lisbon field of Claiborne Parish, Louisiana, brings the total number of producers to 19. Fifteen wells are rigging up and 11 drilling in this most active North Louisiana area.

Estimated Daily Production

Estimated daily gross production all companies week ending May 14, 1937:

NORTH LOUISIANA

Bellevue	760
Caddo light	4,000
Caddo heavy	2,370
Converse	765
Cotton Valley heavy	260
Cotton Valley light	*1,755
De Soto and Red River	1,485
Elm Grove	400
Haynesville	3,390
Holly	130
Homer	2,550
Lisbon	4,170
Pleasant Hill	125
Rodessa	49,335
Sarepta-Carterville	400
Sligo	230
Urania	2,800
Zwolle	800
Total	75,725

SOUTH ARKANSAS

Champagnolle	1,565
El Dorado	2,055
Lisbon	280
Miller County	530
Nevada	800
Schuler	345
Smackover light	2,155
Smackover heavy	17,090
Stephens	560
Troy	700
Urbana	1,345
Total	27,425

Texas side of Rodessa field, 41,930 bbls. daily.
*1,260 bbls. is distillate.

Rodessa Field

Only routine developments were recorded in the Rodessa field, including nine new completions and 15 new locations. Greatest interest now lies in the Miller County, Arkansas, test which is nearing the Rodessa producing horizon and may prove the Rodessa structure productive in three states, and in the testing of the 9-mile outpost extension of production into Marion County, Texas.

Marion County, Texas

Hunter Co., Shreveport, brought in its No. 1 Fonda, in the A. D. Los Santos Coy Survey of Marion County. The well is 9 miles southwest of present production in the Rodessa field and about 2 miles west and slightly north of the Arkansas-Louisiana No. 1 Ford in the Charles Grayson Survey, the discovery well in this Lodi area. The Hill sand, uppermost gas sand in Rodessa, was topped at 5,998 feet, and saturated oil, gas and distillate sand was cored in the Gloyd horizon from 6,076-94 feet. The 7-inch casing was set at 6,082 feet. Upon initial testing the well flowed 10 bbls. hourly, and after 24 hours flowing by heads was averaging 15 bbls. hourly. After testing for about 48 hours production was directed to tanks, where the first hour test gauged 37 bbls. of 39-gravity oil, casing pressure 575 pounds, tubing pressure 80 pounds, total depth 6,096 feet.

It is expected subsurface data obtained from this test will throw light on the structure in this 12-mile semiproven area southwest of Rodessa and result in an active drilling campaign.

Arkansas-Louisiana Gas Co. No. 1 Laura McIntosh, Lodi test in the William Edminstor Survey to the east of the Fonda well, is being carried deeper for a thorough test of the Pettit lime and Upper Travis Peak. The Pettit lime was topped at 6,630 feet and found to be unsaturated. The Travis Peak was topped at 6,744 feet and drilling continues at 6,846 feet without yet reporting any porous or saturated zones.

Rodessa Deep Tests

R. W. Norton No. 1 Payne, SE SE section 27-23-16, Rodessa's deepest test in the gas-producing area about 1 mile south of the townsite, is drilling at 9,628 feet after cementing 7-inch at 9,454 feet. This exploratory test is credited with having cored three saturated sands, which will be tested after the hole is carried to the proposed ultimate depth of 10,000 feet.

United Gas No. 1 J. W. Land, in the gas-producing area of Cass County, Texas, on the R. Potter Survey, is coring at 7,165 feet as a deep exploratory test.

Marr & Perkins No. 1 Hunter, section 13-23-16, Caddo Parish, Louisiana, deep test on peak of the structure, found all zones to a total depth of 6,645 feet dry and plugged back to 6,400 feet. It was reperforated in the Lower Glen Rose sections (Rodessa producing level) from 6,065 feet to 6,080 feet and recompleted, the well then flowing 293 bbls. daily through 8/64-inch tubing choke.

Rodessa Completions

United Gas No. 1 Starke, SE SW section 9-23-16, flowed 33 bbls. hourly through three-eighths inch tubing choke, total depth 5,948 feet.

American Liberty Oil Co. No. 1 B. E. Echols, H. Holbert Survey, flowed 227 bbls. daily through half-inch tubing choke, total depth 6,071 feet.

P. L. Hoffman No. 3 Davis, J. S. Smith Survey, flowed 20 bbls. hourly through quarter-inch tubing choke, total depth 6,010 feet.

R. W. Norton No. 7 Davis, H. Holbert Survey, flowed 538 bbls. daily on initial test through quarter-inch tubing choke, total depth 6,051 feet.

United Production Co. No. 1 Belote, H. Holbert Survey, flowed 11 bbls. hourly through three-eighths inch tubing choke, total depth 6,000 feet.

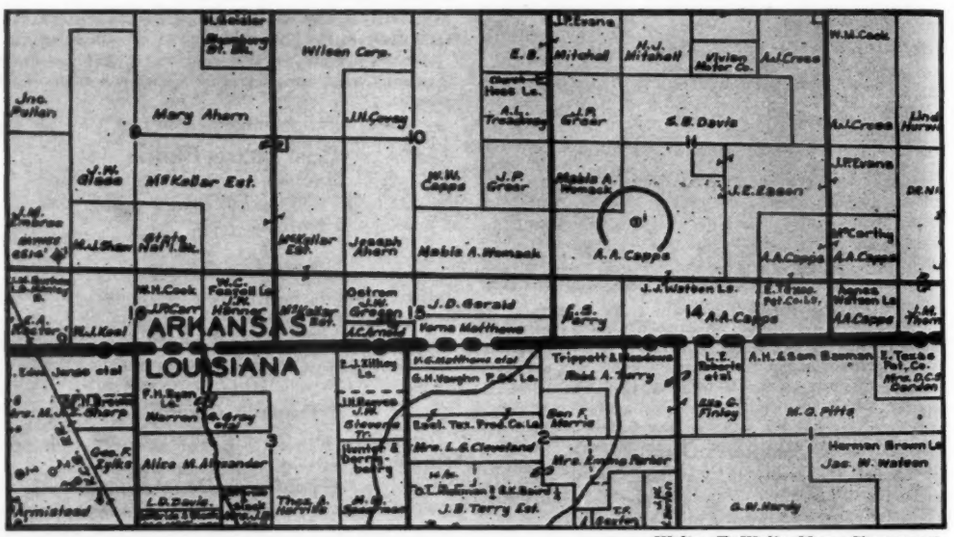
United Production Co. No. 3-A J. A. Blewley, H. Holbert Survey, flowed 16 bbls. hourly through three-eighths inch tubing choke, total depth 5,990 feet.

United Production Co. No. 2 J. S. Hall Unit, William Robinson Survey, flowed 240 bbls. daily on initial test through one-quarter inch tubing choke, total depth 6,039 feet.

United Production Co. No. 3 J. S. Hall Unit, William Robinson Survey, flowed 11 bbls. hourly through quarter-inch tubing choke, total depth 6,040 feet.

Bienville Parish

Lide, Marr & Greer No. 1 W. J. Smelley, SE NW SW section 18-16-4w, made drill stem test from 6,065-88 feet and tested 20,000,000 feet of gas in the Oolitic lime section. Drilling continued to 6,155 feet where another drill stem test made from 6,135-55 in Lower Rose lime indicated a gauge of 40,000,000 feet of gas. Drilling continues at 6,359 feet for a test of the Travis Peak beds.



Walter E. Wylie, Maps, Shreveport.

McClanahan and others No. 1 Capps, Miller County, Arkansas, drilling below 4,200 feet in the North Rodessa area and bidding to make this a tri-state oil pool

Bossier Parish

As a routine completion in the Bellevue field, Premier Investment Co. No. 8 Weaver, section 14-19-11, pumped 20 bbls. daily, total depth 402 feet.

Triangle Drilling Co. brought in two oil producers last week on the southwestern flank of the Sligo gas field, bringing the total oil producers in that field to seven. Its No. 2 Ross Unit, NW SW NW section 23-17-12, flowed 116 bbls. in 16 hours through quarter-inch tubing choke, with 4,000,000 feet of gas, casing pressure 1,960 pounds, tubing pressure 1,775 pounds, total depth 5,180 feet. Its No. 2-A State, SW section 23-17-12, flowed 125 bbls. daily from total depth of 5,170 feet. Both wells are awaiting construction of tankage.

Caddo Parish

As a routine completion in the Pine Island field, Stanolind Oil & Gas Co. No. 121 Dillon, NE SE section 14-21-15, pumped 65 bbls. daily, from total depth 1,680 feet in Nacatoch sand.

Lisbon—Claiborne Parish

Ten new completions in the Lisbon field, having

an aggregate initial production of 5,962 bbls. daily, were made last week, marking this North Louisiana field's most active week since discovery. Total number of producers here now number 19. Eleven new locations were made last week, bringing the total number of drilling wells to 11, and total number of locations rigging up to 15.

C. R. Schuster, who recently purchased control of the Oakes discovery well and the 160-acre drill site, cleaned out Lisbon's first well and acidized it, increasing flow from about 150 bbls. daily to 1,500 bbls., and it is now rated the best producer in the field.

Active trading in leases and mineral rights continues across the northern and central part of Claiborne Parish. Among the companies which have purchased large spreads in this region are Gulf Refining Co., United Gas, Shell Petroleum Co., Skelly Oil Co., Texas Co., Mid-Continent Petroleum Co., and Phillips Petroleum Co.

Lisbon Completions

Gulf Refining Co. No. 1 Eva Bennett, SW section 31-21-4, flowed 465 bbls. in 24 hours through 18/64-inch tubing choke, 3,000 gallons of acid, total depth 5,349 feet.

Gulf Refining Co. No. 2-A H. E. Patton, SE section 36-21-5, flowed 905 bbls. daily through 18/64-inch tubing choke, total depth 5,334 feet.

Gulf Refining Co. No. 3-B H. E. Patton, SW SE SW section 36-21-5, flowed 24 bbls. hourly through quarter-inch tubing choke, tubing pressure 380 pounds, total depth 5,310 feet.

Gulf Refining Co. No. 4-B H. E. Patton, NW NE SW section 36-21-5, flowed 19 bbls. hourly through quarter-inch tubing choke, total depth 5,321 feet.

T. L. James No. 1 Patton Estate, N half NE SE section 36-21-5, flowed 500 bbls. daily through half-inch tubing choke, total depth 5,321 feet.

T. L. James No. 2 Patton Estate, SW NE SE section 36-21-5, flowed 823 bbls. in 24 hours through quarter-inch tubing choke, total depth 5,344 feet.

Love Petroleum Co. No. 3 H. E. Patton, NE SW SE section 36-21-5, flowed 19 bbls. hourly through seven-sixty-fourths inch tubing choke, total depth 5,335 feet.

L. O. McMillan No. 1 H. E. Patton, E half SW NW section 36-21-5, flowed 32 bbls. hourly through quarter-inch tubing choke, total depth 5,253 feet.

L. O. McMillan No. 1 Roberta Vaughn, S half NW NE section 36-21-5, flowed 300 bbls. daily through three-fourths inch tubing choke, total depth 5,313 feet.

P. W. Woodruff No. 2 H. E. Patton, N half SW NE section 36-21-5, flowed 400 bbls. daily through ten sixty-fourths inch tubing choke, total depth 5,299 feet.

Lincoln Parish

H. D. Easton, Shreveport, who made the location for the discovery well at Lisbon, has assembled approximately 12,000 acres in the North Simmsboro block, and entered into an agreement whereby the Belmont Quadrangle Drilling Corp., Bradford, Pa., will begin immediate drilling of a 6,000-foot Lower Glen Rose test in the center of the NE NE section 21-19n-4w, Lincoln Parish, to be known as No. 1 G. W. Dye. This test is about one-quarter mile northeast of Homokla Oil Co. No. 1 Lewis, drilled to a depth of 3,001 feet in 1920 on H. D. Easton's location. The Lewis well is reported to have checked regionally high.

Morehouse Parish

Additional drilling is to be done in the Monroe gas field this summer in preparation for the anticipated peak loads next winter. Seven locations were staked in that area last week.

Henry E. Rondeau and associates are reported to be preparing to resume operations at No. 1 Clark, section 10-20-7e, wildcat test southeast of Mer Rouge, which was abandoned temporarily last year below 3,750 feet. Several major companies are reported to be contributing dry-hole money.

Red River Parish

Gulf Refining Co. No. 40 E. T. Robinson, SW section 24-13-11, as a routine completion in the Bull Bayou field, pumped 46 bbls. daily on initial test, total depth 2,553 feet.

Perla Oil Co. No. 1 DeLong, center section 33-12-10, reported coring saturated oil sand from 1,037-39 feet, and 7-inch casing has been set at 1,023 feet preparatory to testing.

Sabine Parish

A. C. Scott and Grogan Oil Co. No. 1 Bowman Hicks Lumber Co., section 23-9-13, formerly completed as a shallow pumper in the Converse oil field, was deepened to total depth of 3,088 feet, where a 20-foot saturated section is reported to be indicated on Schlumberger survey. The 5-inch casing has been set at 3,063 feet in preparation to test.

The closely watched deep test of the Converse oil field, Kirk-Green-Way No. 1 Whitney Corp., NW NE section 8-9-13, is slowly coring ahead below 5,370 feet. Just above this depth high gas pressure was reported, and the well has attempted to blow out.

ARKANSAS

Hempstead County

H. D. Easton and others No. 1 R. M. Lagrove, center NE NE section 5-12s-26w, is building rig preparatory to continuing the shoreline search made by three other wells recently in the nearby section. Guided by information obtained from the three previous Paleozoic tests, the present location is thought to be favorably situated.

Miller County

E. H. Moore No. 1 Dale, 660 feet north and west of center of section 24-15-26, offsetting C. V. Lenz's recent discovery in the Lower Glen Rose horizon, cored Coquina lime from 4,373-85 feet, which is believed to correspond with the producing zone of the discovery well, but it was found to be dry. Coring continued at 4,416 feet.

Nivla Oil Corp. No. 1 Merchants and Planters Bank, NE SE SE section 18-15-26, about 5 miles due west of the Lenz discovery in section 24, has been drilled to a total depth of 4,500 feet and abandoned as dry. The Gloyd sand was topped at 4,145 feet and some showings of dead oil were logged in the section.

Arkansas' bid to enter the Rodessa pool will soon be determined as McClanahan and others No. 1 W. L. Capps, 2 miles north of present production in the North Rodessa area, is drilling below 4,200 feet.

Nevada County

Clyde H. Cox No. 1 W. Haynie, NW SW NE section 6-14-20, was a routine completion on the flank of the Troy field, flowing 100 bbls. of oil and 12,000,000 feet of gas from the Nacatoch sand, total depth 1,197 feet.

G. H. Vaughn No. 1 Christopher, SW SW SE section 3-14-20, deep test on northern flank of the Troy field, was abandoned as dry at total depth of 4,335 feet.

Ouachita County

O. F. Whittaker No. 1 S. Howard, SW NW NE section 20-12-16, was plugged and abandoned at 2,716 feet, after standing for several months.

Union County

In the Rainbow City field, Penn-Ark. Petroleum Corp. No. 1 W. N. Raulston, NW NW SE section 12-17-14, pumped 15 bbls. daily on initial test, total depth 2,983 feet.

McCresienn Oil Co. No. 5 L. Atkins, SW SW NE section 3-18-13, was plugged and abandoned, total depth 3,667 feet.

South Arkansas is anxiously awaiting the outcome of the three offsets racing for the Basal Glen Rose pay sand discovered recently in the Schuler field by Lion Oil Refining Co. No. 1 Edna Morgan, section 18-18-17. Farthest advanced of the three is Marine Oil Co. No. 1 M. Justiss, Lot 7 in NW of section 18-18-17, which is drilling below 5,000 feet and is expected to be testing within the next week.

MISSISSIPPI

Geophysical Notes

Shell Petroleum Corp. has a gravimeter crew in the Woodville area of Wilkinson County, Mississippi.

United Gas Public Service, with headquarters in Mobile, Ala., is concentrating for the present in the southwestern part of Washington County, Alabama, and portions of George and Greene Counties, Mississippi. This company plans to keep at least one geophysical outfit busy east of the Mississippi River.

Sinclair's torsion balance crew is working in Livingston Parish, Louisiana. Humble is directing its magnetometer outfit in St. Tammany Parish.

Danciger & Danciger have two crews in Mississippi, detailing every 1,000 feet in Township 4n, Ranges 1 and 2w, Wilkinson County, Mississippi.

Phillips Petroleum's seismograph party is working in Township 2n, Range 10w, Perry County.

Sun Oil Co.'s seismograph outfit, gravimeter crew and torsion balance party, are busy around company acreage in Township 4n, Ranges 15 and 16w, Lamar County.

Southern Natural Gas Co.'s seismic crew is detailing in Hinds County, Mississippi, between Brownsville and Edwards.

EAST TEXAS (Border Counties)

Panola County

Drilling below 5,800 feet, Magnolia Petroleum Co. No. 2 Hull, T. Applewhite Survey, east of Carthage, is due soon to reach the producing zone of its No. 1 gas distillate well completed several months ago, at a total depth of 5,960 feet. Operators may carry this second hole deeper if only gas and distillate are obtained.

Shelby County

H. A. Stebbinger No. 2 Pickering Lumber Co., Hanson Survey, Lower Glen Rose test of the northern Shelby County area, began testing and after swabbing and jamming with gas, water with no show of oil or gas began to appear. Operators were shut down, and it is believed effective cementing was not effected near bottom. Total depth is 5,126 feet. Attractive oil showings had been reported.

Gulf Coast Fields

(Continued from Page 133)

cated on the Citrus Grove Prospect, Continental Oil Co. has abandoned No. 2 Robbins at 11,612 feet after a Schlumberger survey showed nothing of importance. This is the deepest test ever drilled on the Gulf Coast.

A new sand was opened on the northeast side of the Heyser field, Calhoun County, by completion of Humble Oil & Refining Co. and Plymouth Oil Co. No. 13-B P. H. Welder in the A. Sisneros Survey. Sand was topped at 5,576 feet and cored to 5,586 feet, the total depth. Seven-inch casing was cemented at 5,578 feet and the well flowed 14 bbls. of 31-gravity oil an hour through a three-sixteenths inch choke with tubing pressure 675 pounds and casing pressure 875 pounds. Production heretofore was from the 5,400-foot sand. One mile north and across the line in Victoria County, George Echols No. 4 W. H. Bennett has been completed for a wet gas well with tubing pressure 2,100 pounds. It is 500 feet northeast of his No. 3 Bennett in the J. Galban Survey.

At Fairbanks, Harris County, Amerada Petroleum Co. and Stanolind Oil & Gas Co. No. 1 Jacobs was drilled to the Upper Saline Bayou at 7,256 feet and is plugging back to make a test in the gas section, which was topped at 6,803 feet. The Cockfield was topped at 6,600 feet.

Republic Production Co. and Houston Oil Co. No. 2 Hurd, which opened the first production for Tyler County two weeks ago, flowed 458 bbls. of 46-gravity oil a day through a quarter-inch choke with tubing pressure 950 pounds and casing pressure 1,500 pounds. Production is from the Queen City or Wilcox formation, topped at 7,630 feet and bottomed at 7,641½ feet.

West Beaumont

In the West Beaumont field, Jefferson County, Glenn H. McCarthy's No. 3 Longe showed oil and salt water on a drill stem test at 5,834-5,412 feet and is testing again after cementing 100 feet of 5-inch liner at 5,412 feet. Stanolind Oil & Gas Co. No. 2 Sargi cored sand showing oil from 5,982-86 feet and 7-inch casing was cemented at 6,020 feet. Total depth is 6,100 feet. Same company's No. 1 John W. Hall perforated casing at 5,848-54 feet and it showed 400 pounds of pressure and 90 feet of mud with a distillate taste.

Another producer was recorded for the Segno field, Polk County, with the completion of Gulf Oil Corp No. 3 Wing, which flowed 159 bbls. a day through a quarter-inch choke with tubing pressure 1,750 pounds and casing pressure 1,800 pounds. Production is from a screen setting made at 5,182-93 feet, the total depth. The completion of J. K. Dorrance No. 1 Wing has been delayed due to the casing being split while the cement plug was pumped down and a full string of 5-inch casing will probably be run.

Two locations were reported for the Magnet field, Wharton County, Atlantic Refining Co. No. 1-B H. C. Cockburn is in Lot 10, Block 84, in the J. Smith and McKenzie Survey, while W. W. Van Allen and Texas Crusader are preparing to spud No. 1 Sweet in Lot 3, Block 84. The discovery well continues to flow oil along with salt water.

Gulf Oil Corp. No. 3 Wilkes & Smith, Lockridge field, Brazoria County, flowed 701 bbls. of pipe line oil a day through a quarter-inch choke with working pressure 2,000 pounds. Production is from a screen setting from 6,366-68 feet, the total depth.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, May 15. — Early production figures for the larger Turner Valley wells in April indicate the month will likely establish a new record. Royalite Oil Co. No. 4 Sterling-Pacific delivered 30,041 bbls., or slightly over 1,000 bbls. a day, the largest producer. B. & B. Co. No. 1 produced 19,632 bbls. and Turner Valley Royalties No. 1 produced 17,618 bbls.

The March total for Alberta of 161,832 bbls. was the highest in history except December, 1930, and January, 1931. In Turner Valley, Royalite Oil Co. was the largest producer, with 46,772 bbls., and B. & B. Co. No. 1 second with 22,283 bbls. and the largest producing well. Turner Valley Royalties No. 1 produced 18,724 bbls., and No. 4 Sterling-Pacific 12,125 bbls. in 10 days. Among the newer completions Foundation Royalties No. 1 produced 6,937 bbls.; No. 3 Sterling-Pacific, 2,918 bbls.; West Side Royalties No. 1, 5,714 bbls.

Weymarn Testing

On the Mill Creek structure west of Pincher Creek, Weymarn Petroleums No. 2, LSD 5, section 7-6-1w5, bottoming at 5,960 feet, is testing light crude and wet gas production from a horizon above the Madison limestone. The well is being completed by Anglo-Canadian Development & Holding Co. of Calgary. Considerable light green crude forced itself through the mud, and gas pressure was sufficient to blow the fluid 30 feet into the air at intervals.

Arca Deep Test

On the Cayley structure, High River area, Arca Development Corp. No. 1, NW quarter section 24-18-1w5, finished in the limestone at 8,988 feet, when heavy pressure was indicated, due however, not to gas, but to a heavy inflow of sulfur water from a horizon 232 feet in the Madison. It is planned to plug back to the upper lime or Dalhousie sand around 8,600 feet, where some oil shows were encountered. Arca No. 1, drilled jointly by Imperial Oil, Canadian Western Natural Gas, Light, Heat & Power Co. and Calgary & Edmonton Corp., is the deepest well in the British Empire, and is estimated to have cost over $225,000. The record depth was reached without any serious drilling mishaps, the work being in charge of the Imperial Oil production staff.

Davies Petroleums, Ltd., has validated 10,000 acres on the Aldersyde structure, north of Arca No. 1, of which 2,700 acres has been taken by Madison Oils, Ltd., and will drill a deep test. On the Aldersyde structure, Ranchmen's Gas & Oil Co. No. 1, LSD 16, section 13-20-29w4, below 7,118 feet, is logging 1,450 feet higher than the Arca well, 16 miles southwest. It is apparently in the Dalhousie, after proving the Benton 25 per cent and the Blairmore 32 per cent thinner than in Turner Valley. Several oil shows were met with a strong show of 62-gravity at 6,600 feet, and sufficient gas for drilling.

On the New Valley structure, northwest of Turner Valley, McLeod Oil Co. No. 1, LSD 4, section 6-21-2w5, is below 7,302 feet.

Turner Valley Field

In the West Central Turner Valley area, Dalhousie Oil Co. No. 8, LSD 6, section 30-19-2w5, bottoming in the lime at 6,911 feet, after failing to recover drill rods, will be plugged back to test production from the Dalhousie at 5,928 feet. Independent operators are arranging for a test west and probably a little north.

In section 5-19-2w5, Mercury Royalties No. 1, LSD 8, changed to rotary at 2,822 feet, and Mercury Oils No. 8, LSD 3, section 4-19-2w5, is changing to rotary at 2,800 feet.

On the west side of South Turner Valley, Royalite Oil Co. No. 5 Sterling-Pacific, LSD 12, section 33-18-2w5, is below 3,791 feet. No. 6 Sterling-Pacific, LSD 5, same section, is working on cellar.

In section 32-18-2w5, Royal Crest Petroleums No. 1, LSD 9, is below 1,850 feet. West Turner Petroleums No. 1, LSD 2, has derrick on location. West Flank Oil Co. No. 1, LSD 1, is rigging rotary.

In section 28-18-2w5, Richland Royalties No. 1, LSD 12, is below 2,412 feet. Richland No. 2, LSD 5, is below 3,807 feet. Richland No. 3, LSD 14, is in hard formation below 5,475 feet. Three Point Petroleums No. 1, LSD 12, is reaming below 956 feet with bottom at 1,249 feet. Four Star Petroleums No. 1, LSD 13, is deepening from 547 feet. Model-Spooner-Reward No. 1, LSD 4, is below 620 feet after laying new gas line.

In section 29-18-2w5, Granville Oils No. 1, N half LSD 16, is close to 3,000 feet. Commoil No. 1, LSD 15, is below 2,575 feet. Command Oils No. 1, LSD 14, same section, is spudding with cable tools and will finish below 3,000 feet with rotary. Share Royalties No. 1, N half LSD 8, is in hard formation below 2,400 feet. National Petroleum Corp. No. 1, S half same LSD, is drilling. Globe Royalties No. 1, LSD 7, is below 1,035 feet. Davies Petroleums No. 1, LSD 2, is resuming after cementing 16-inch casing at 1,500 feet. Sunburst Oil Co. No. 1, N half LSD 1, same section, is below 1,525 feet. In section 21-18-2w5, Davies-Royalite No. 2, LSD 13, is below 2,455 feet.

In section 20-18-2w5, Royal Canadian Oils No. 1, LSD 15, has derrick up. Monarch Royalties No. 1, LSD 9, offsetting Foundation Royalties No. 1 producer to the northwest, is in hard formation below 4,635 feet. Sunset Oils No. 1, LSD 10, is below 930 feet after cementing 16-inch casing at 700 feet. Brown Oil Corp. No. 2, LSD 8, is below 4,000 feet.

In section 17-18-2w5, Prairie Royalties No. 1, LSD 16, is below 2,550 feet. Brown Oil Corp. No. 1, LSD 14, section 16-18-2w5, is below 2,300 feet. Firestone Petroleums No. 1, LSD 13, is below 1,111 feet. Richwell Oil Co. No. 1, LSD 5, same section, is drilling.

In section 9-18-2w5, National Petroleum Corp. No. 2, LSD 14, is below 750 feet after setting 18¾-inch casing at 600 feet.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, is below 7,448 feet after getting more gas at 7,440 feet. The formation has been regular, with no faulting, and it is believed close to the Madison limestone.

On the Duncan structure, northwest of Cochrane, Spindletop Oils No. 1, LSD 4, section 1-30-6w5, is below 190 feet after setting surface pipe.

On the Kootenay dome west of Calgary, Roxana Petroleums No. 1, section 8-24-7w5, is in a hard section of the Banff shales below 2,700 feet, after drilling through the Madison limestone.

On the Birch Ridge structure, Elbow Oils No. 1, LSD 11, section 35-22-5w5, is in caving formation below 5,080 feet.

On the Highwood Sinclair structure, southwest of Turner Valley, South End Petroleums No. 1, LSD 6, section 36-18-3w5, is running drill rods to resume from 4,525 feet. On the south end, Golden Gate Oils, Ltd., financed chiefly by Chinese interests in Vancouver and Calgary, will drill its No. 1 in section 12-16-3w5, offsetting the old Alberta Associated No. 1 Christie, which got shows of light crude at 2,300 and 2,895 feet and was lost at 3,000 feet. Frank Ho Lem of Calgary is secretary-treasurer of the company.

Quaich Test Planned

In the southern foothills, west of the Watson structure, C. C. Petroleums, Ltd., of Vancouver, British Columbia, is arranging for a test on the Quaich structure in Township 9-3w5, mapped some years ago by E. H. Cunningham-Craig. The company holds 2,480 acres about 3½ miles west of Mar Jon No. 3 well. The company is headed by Sir Francis Price of London, England, and other directors include John L. Davidson, John A. Coleman, R. W. Millard, Wm. E. Williams, Richard S. Davidson, all of Vancouver.

Border Fields

West of Lethbridge, in southern Alberta, Lethbridge Petroleums & Refining Co. No. 1, LSD 12, section 11-8-22w4, is rigged up.

On the Twin River structure south of Lethbridge, Del Bonita Associated Oils No. 3, LSD 9, section 10-2-20w4, is moving cable tool equipment to resume from 3,988 feet where casing was cemented in the top of the Madison limestone.

In the Taber field, Plains Petroleum No. 2, LSD 11, section 25-9-17w4, has derrick up. Joseph Irwin of Calgary is completing a survey of acreage north of Taber for Taber Petroleums, Ltd. It will be followed by core drilling after which a commercial test will be started. Ted Sundal of Taber is managing director. Rio Oils, Ltd., incorporated under Alberta charter at Calgary, is preparing to drill on acreage of the Taber Syndicate. Officers are: Benjamin Ginsberg, Louis Jacobson, A. H. Meriche, Robert Taylor and James Wordie, all of Calgary, and H. R. Roth of Hartell.

In the Steveville area east of Galgary, Anaconda Oil Co. No. 1 has been spotted in LSD 15, section 9-22-12w4.

Near Atlee, Dominion Government No. 1 test has resumed from 562 feet where work was shut down last fall after striking a small gas flow.

Moose Dome to Resume

On the Moose dome, northwest of Calgary, Moose Oils No. 2, LSD 8, section 29-22-6w5, is preparing to resume from 750 feet. Moose Oils No. 1, farther north and west in the same section, got strong oil showings and a heavy gas flow, utilized for drilling No. 2. Production in No. 1 comes from the Devonian limestone.

East-Central Alberta

In the Wainwright field, east-central Alberta, Montreal-Alberta Oils No. 1 LSD 2, section 15-45-7w4, bottoming in the lime at 3,390 feet, is pulling 6-inch pipe preparatory to a further test.

In the Ribstone field, eastern Alberta, London-Ribstone Oils No. 2, LSD 5, section 22-43-3w4, has resumed from 2,122 feet. A producing horizon is expected around 2,200 feet. London-Ribstone No. 3 will be started to take production from around 2,017 feet; and later London-Ribstone No. 1, LSD 14, section 10-43-3w4, standing at 2,433 feet, will be deepened into the lime met at 2,414 feet. Dave Credille will be in charge of drilling, with Capt. W. W. Kelland as field supervisor.

Dina Oil & Refining Co. No. 1, LSD 14, section 9-45-1w4, close to the Saskatchewan boundary, is below 1,540 feet after encountering a strong gas flow at 1,500 feet. Oil production is expected at 1,800 feet.

Saskatchewan Gasser

In the Lloydminster field, western Saskatchewan, Triangle Oil & Gas Co. No. 1 has encountered a flow estimated 10,000,000 feet a day with 345 pounds rock pressure at around 1,000 feet and is being drilled deeper.

Drilling Contractors

(Continued from Page 145)

obligations. Locations reported by fields are as follows: One at Raccoon Bend by Humble; seven at Hastings by Stanolind Oil & Gas Co., Goldson and others and Navarro Oil Co.; two at Lockridge by Gulf Oil Corp.; one at Manvel by Burton Drilling Co.; two at Heyser by Humble and Portilla Drilling Co.; one at Anahuac by Humble; one at Turtle Bay by Stanolind Oil & Gas Co.; one at Dickinson by Pan American Production Co.; one at Tomball by Amerada and Stanolind Oil & Gas Co.; five at Amelia by Humble; three at Nome by Sun; one at Spindletop by Unit Oil Corp.; one at Livingston by Ownby Drilling Co.; one at Segno by Gulf Oil Corp.; one at Placedo by Salt Mount Oil Corp., and two at the Magnet field by Atlantic Refining Co. and W. W. Van Allen.

C. M. HEETER, SONS & CO., INC.
MAIN OFFICE AND WORKS, BUTLER, PA.

"Heeter's" Packers and Swabs

Heeter's Improved Patent Swabs, Corrugated Friction Sockets, Wire Line Pumping Outfits, Sand Pumps and other Gas and Oil Well Materials.

Summary of Operations, All Fields, April

SUMMARY OF ALL FIELDS

Wells Completed

	Comp.	Prod.	Dry	Gas
Penna. Grade fields	442	759	20	66
Lima	4	12	1	1
Central Ohio	103	114	32	50
Indiana	13	20	7	2
Kentucky	17	670	5	1
Michigan	82	28,908	32	1
Mississippi	1	0	1	0
Kansas	243	155,525	50	4
Oklahoma	342	74,739	92	13
No. Cent. Texas	223	17,376	89	5
West Texas	215	169,535	22	0
Texas Panhandle	62	21,493	3	11
East Texas	176	5,927	6	0
East Cent. Texas	67	17,749	7	3
East Texas border counties	31	8,290	4	3
Gulf Coast, Tex.	118	40,081	23	4
Southwest Texas	224	31,325	70	10
Gulf Coast, La.	28	7,281	11	1
North Louisiana	45	5,407	13	7
Arkansas	7	403	2	1
Montana	11	395	2	2
Wyoming	5	4,862	0	0
Colorado	1	0	1	0
New Mexico	69	91,142	5	1
Total April	2,529	682,013	498	186
Total March	2,416	662,907	499	199
Difference	113	19,106	1	3

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Penna. Grade fields	86	405	491
Lima	5	34	39
Central Ohio	67	170	237
Indiana	10	42	52
Kentucky	29	70	99
Illinois	9	47	56
Michigan	95	132	227
Florida	2	4	6
Alabama	1	2	3
Mississippi	4	11	15
Kansas	72	382	454
Oklahoma	62	472	534
North Cent. Texas	57	241	298
West Texas	108	405	513
Texas Panhandle	45	157	202
East Texas	80	105	185
East Central Texas	24	84	108
East Texas border counties	4	48	52
Gulf Coast, Texas	34	151	185
Southwest Texas	67	177	244
Gulf Coast, Louisiana	19	100	119
North Louisiana	28	106	134
Arkansas	13	38	51
Montana	8	56	64
Wyoming	13	52	65
Colorado	0	31	31
New Mexico	24	151	175
Utah	2	7	9
Nebraska	0	3	3
Total April	968	3,683	4,651
Total March	982	3,802	4,784
Difference	14	119	133

KANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Barber	2	441	1	3	2	5
Barton	19	15,254	3	8	37	45
Butler	4	456	0	2	12	14
Chase	0	0	0	0	2	2
Chautauqua	2	136	0	2	12	14
Coffey	4	85	1	0	2	2
Cowley	6	6,056	2	1	17	18
Decatur	0	0	0	1	0	1
Edwards	0	0	0	0	1	1
Elk	3	100	1	0	2	2
Ellis	12	13,093	3	6	38	44
Ellsworth	5	2,649	1	1	12	13
Finney	1	0	1	0	0	0
Grant	1	0	0	0	0	0
Greenwood	5	55	3	0	10	10
Hamilton	0	0	0	1	0	1
Harvey	3	246	1	2	2	4
Harper	0	0	0	0	1	1
Haskell	0	0	0	0	1	1
Kearny	1	0	0	1	0	1
Kingman	0	0	0	0	1	1
Logan	0	0	0	0	1	1
Lyon	0	0	0	0	2	2
Marion	1	103	0	1	1	2
McPherson	6	2,640	0	4	16	20
Meade	0	0	0	1	0	1
Mitchell	0	0	0	0	1	1
Morton	0	0	0	0	1	1
Ness	0	0	0	1	1	2
Osborne	0	0	0	0	1	1
Pawnee	0	0	0	0	1	1
Pratt	1	0	1	0	0	0
Reno	24	12,801	5	5	27	32
Rice	60	44,675	5	11	60	71
Rooks	1	40	0	2	8	10
Rush	2	37	0	3	9	12
Russell	42	43,033	5	9	55	64
Saline	1	0	1	0	0	0
Scott	0	0	0	0	2	2
Sedgwick	1	0	1	0	6	6
Seward	0	0	0	0	1	1
Stafford	8	8,892	2	3	9	12
Stevens	1	0	0	0	3	3
Sumner	12	4,233	5	3	15	18
Trego	1	0	1	0	3	3
Woodson	14	500	7	1	7	8
Ttl. Apr.	243	155,525	50	72	382	454
Ttl. Mar.	156	97,304	31	68	342	410
Difference	87	58,221	19	4	40	44

April gas well completions: Grant, 1; Kearny, 1; Rush, 1; Stevens, 1.

OKLAHOMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Atoka	0	0	0	0	2	2
Alfalfa	0	0	0	0	1	1
Beckham	2	0	1	0	3	3
Caddo	2	0	0	2	3	5
Carter	13	248	3	0	18	18
Choctaw	1	0	1	0	0	0
Cleveland	2	1,379	0	2	10	12
Coal	1	0	1	1	1	2
Comanche	1	3	0	1	7	8
Cotton	1	0	1	0	5	5
Creek	21	485	10	7	34	41
Garfield	0	0	0	0	3	3
Garvin	5	376	0	1	8	9
Grady	0	0	0	0	3	3
Grant	0	0	0	0	1	1
Greer	0	0	0	0	1	1
Harmon	0	0	0	0	1	1
Haskell	0	0	0	0	1	1
Hughes	11	104	3	2	15	17
Jackson	3	40	2	0	2	2
Jefferson	10	245	5	0	7	7
Johnston	0	0	0	0	1	1
Kay	1	235	0	1	5	6
Kiowa	0	0	0	0	5	5
Latimer	0	0	0	0	1	1
Le Flore	1	0	1	0	1	1
Lincoln	5	1,615	0	0	9	9
Logan	6	3,695	3	2	12	14
Love	0	0	0	0	2	2
Marshall	3	0	3	0	1	1
McIntosh	0	0	0	0	1	1
Murray	0	0	0	0	3	3
Muskogee	4	20	3	3	9	12
Noble	5	4,423	0	1	11	12
Okfuskee	36	2,868	3	2	17	19
Oklahoma	16	20,714	0	6	26	32
Okmulgee	14	27	8	3	22	25
Osage	25	2,045	10	3	34	37
Pawnee	4	6	3	0	1	1
Payne	0	0	0	0	3	3
Pittsburg	0	0	0	0	1	1
Pontotoc	59	27,266	10	10	69	79
Pottawatomie	8	739	2	0	15	15
Pushmataha	0	0	0	0	1	1
Seminole	28	7,087	7	8	38	46
Stephens	13	89	5	0	14	14
Texas	0	0	0	0	3	3
Tillman	0	0	0	0	5	5
Tulsa	41	1,030	7	5	28	33
Wagoner	0	0	0	1	7	8
Washita	0	0	0	1	1	2
Ttl. Apr.	342	74,739	92	62	472	534
Ttl. Mar.	197	63,161	53	68	471	539
Difference	145	11,578	39	6	1	5

(Gas well completions: Beckham, 1; Caddo, 2; Creek, 4; Hughes, 4; Okmulgee, 1; Osage, 1.)

GULF COAST

Texas

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Ace	0	0	0	1	1	
Amelia	10	4,981	1	4	12	16
Anahuac	8	3,341	0	1	5	6
Bammel	1	16	0	0	0	0
Bay City	0	0	0	0	1	1
Barbers Hill	1	185	0	0	2	2
Taleferno	1	0	0	0	0	0
Batson	0	0	0	0	1	1
Big Hill	0	0	0	0	1	1
Big Creek	0	0	0	0	2	2
Blue Basin	1	0	0	0	0	0
Blue Ridge	0	0	0	1	1	2
Boling	2	526	1	1	2	3
Clay Creek	1	0	1	0	1	1
Cleveland	0	0	0	0	1	1
Conroe	2	1,920	1	0	1	1
Cotton Lake	1	636	0	0	1	1
Dickinson	4	2,611	0	4	8	12
Esperson	0	0	0	0	1	1
Fairbanks	0	0	0	0	1	1
Fannett	0	0	0	0	1	1
Five Corners	0	0	0	0	1	1
Ganado	1	72	0	1	0	1
Hankamer	0	0	0	0	1	1
Hastings	13	7,113	1	2	14	16
Hawkinsville	0	0	0	0	1	1
Heyser	7	1,488	0	1	3	4
Hitchcock	1	0	1	0	0	0
High Island	0	0	0	1	3	4
Hull	1	369	0	0	5	5
Humble	1	303	0	1	0	1
Keeran	2	430	0	0	2	2
Labelle	0	0	0	0	1	1
Lockridge	2	1,192	0	0	4	4
Livingston	1	0	1	0	0	0
Manvel	5	1,001	3	1	3	4
Louise	0	0	0	0	1	1
Markham	1	0	1	0	0	0
Mauritz	1	441	0	0	0	0
Nome	5	858	0	0	3	3
Old Ocean	0	0	0	0	1	1
Orchard	0	0	0	0	2	2
Palacios	1	175	0	1	0	1
Pickett Ridge	1	37	0	0	1	1
Pierce Junction	0	0	0	0	1	1
Placedo	6	592	0	2	8	10
Raccoon Bend	6	1,756	2	0	2	2
Refugio	1	122	0	0	1	1
Sandy Point	0	0	0	1	1	2
Silsbee	1	240	0	0	3	3
Seabreeze	2	11	1	0	1	1
Segno	2	926	0	1	3	4
Sour Lake	0	0	0	0	1	1
South Houston	3	1,080	0	1	6	7
Spanish Camp	0	0	0	0	1	1
Thompson	0	0	0	1	0	1
Tomball	5	2,659	0	2	5	7
Turtle Bay	0	0	0	0	1	1
Quintana-Oconnor	6	4,263	0	2	7	9
Van Vleck	1	631	0	0	3	3
W. Columbia	1	0	1	0	0	0
Withers	1	106	0	0	2	2
Miscellaneous	8	0	8	5	16	21
Ttl. Apr.	118	40,081	23	34	151	185
Ttl. Mar.	125	39,020	33	30	134	164
Difference	7	1,061	10	4	17	21

(April gas well completions: Taleferno, 1; Blue Basin, 1; Nome, 2.)

Louisiana

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Bayou Bouillon	0	0	0	0	1	1
Anse La Butte	1	0	1	0	1	1
Bay St. Elaine	0	0	0	1	0	1
Bayou Cocotriz	0	0	0	0	1	1
Black Bayou	0	0	0	0	1	1
Caillou Island	1	1,150	0	1	4	5
Cameron Meadows	1	0	0	0	2	2
Cankton	1	0	1	0	0	0
Charenton	0	0	0	0	2	2
Choctaw	0	0	0	0	1	1
Darrow	1	0	1	0	1	1
Dog Lake	0	0	0	0	1	1
Four Isle	1	0	1	0	0	0
Gillis	2	1,060	1	2	4	6
Garden Island	1	225	0	1	0	1
Hackberry	2	451	0	1	9	10
Iowa	0	0	0	0	1	1
Jeanerette	3	950	1	0	3	3
Jennings	2	610	0	1	11	12
Lafitte	0	0	0	0	3	3
Lake Barre	0	0	0	0	1	1
Lake Hermitage	0	0	0	0	1	1
Lake Pelto	0	0	0	0	1	1
Leesville	1	482	0	0	2	2
Lockport	0	0	0	0	1	1
New Iberia	1	1,200	0	2	7	9
Port Barre	0	0	0	1	0	1
Roanoke	0	0	0	0	1	1
Sorrento	1	0	1	0	1	1
Starks	0	0	0	0	1	1
St. Martinsville	0	0	0	0	2	2
Sulphur	0	0	0	0	3	3
Tepetate	5	1,153	0	2	2	4
Valentine	0	0	0	0	3	3
Vinton	0	0	0	1	0	1
White Castle	0	0	0	0	1	1
Miscellaneous	4	0	4	6	27	33
Ttl. Apr.	28	7,281	11	19	100	119
Ttl. Mar.	48	14,493	21	13	86	99
Difference	20	7,212	10	6	14	20

(One gas well completed in Cameron Meadows pool.)

NORTH LOUISIANA

Summary of Field Operations

Parish—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Bienville	0	0	0	1	2	3
Bossier	7	405	1	2	5	7
Caddo-Rodessa	9	3,869	0	1	15	16
Caddo-Other	11	303	4	6	19	25
Caldwell	0	0	0	0	1	1
Catahoula	0	0	0	1	0	1
Claiborne	0	0	0	3	20	23
De Soto	3	0	3	2	6	8
Franklin	0	0	0	0	1	1
Grant	0	0	0	1	3	4
Jackson	0	0	0	0	1	1
La Salle	7	220	2	0	1	1
Lincoln	0	0	0	2	2	4
Morehouse	0	0	0	0	1	1
Natchitoches	1	0	1	0	3	3
Ouachita	0	0	0	0	1	1
Red River	1	50	0	0	4	4
Richland	1	0	1	0	0	0
Sabine	1	0	1	1	6	7
Tensas	0	0	0	0	3	3
Union	1	0	0	2	1	3
Webster	3	560	0	5	11	16
Winn	0	0	0	1	0	1
Ttl. Apr.	45	5,407	13	28	106	134
Ttl. Mar.	36	5,071	7	22	98	120
Difference	9	336	6	6	8	14

Gas production: Bossier, 46,000,000 ft.; Caddo-Rodessa, 7,000,000 ft.; Union, 2,000,000 ft.; Webster, 50,000,000 ft.

ALABAMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Choctow	0	0	0	0	1	1
Greene	0	0	0	1	0	1
Houston	0	0	0	0	1	1
Ttl. Apr.	0	0	0	1	2	3
Ttl. Mar.	0	0	0	0	2	2
Difference	0	0	0	1	0	0

MISSISSIPPI

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Amity	0	0	0	0	1	1
Hinds	0	0	0	0	1	1
Bolivar	0	0	0	0	1	1
Washington	0	0	0	0	1	1
Simpson	0	0	0	1	0	1
Claiborne	0	0	0	0	1	1
Jones	0	0	0	1	0	1
Grenada	0	0	0	0	1	1
Lamar	1	0	1	0	2	2
Harrison	0	0	0	0	1	1
Yalobusha	0	0	0	1	0	1
Kemper	0	0	0	1	0	1
Perry	0	0	0	0	1	1
Pike	0	0	0	0	1	1
Ttl. Apr.	1	0	1	4	11	15
Ttl. Mar.	2	0	2	6	9	15
Difference	1	0	1	2	2	0

ARKANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Calhoun	0	0	0	0	1	1
Clark	0	0	0	1	1	2
Grant	1	0	1	0	1	1
Hempstead	0	0	0	0	2	2
Lafayette	0	0	0	0	2	2
Little River	0	0	0	0	2	2
Lonoke	0	0	0	1	0	1
Miller	0	0	0	0	6	6
Nevada	4	95	1	6	8	14
Ouachita	0	0	0	2	3	5
Paluski	0	0	0	0	1	1
Saline	0	0	0	0	1	1
Seiver	0	0	0	0	1	1
Union	2	308	0	3	9	12
Ttl. Apr.	7	403	2	13	38	51
Ttl. Mar.	10	748	7	9	39	48
Difference	3	345	5	4	1	3

Gas production: Nevada County, 30,000,000 ft.

EAST TEXAS (Border Counties)

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Bowie	1	0	1	0	4	4
Cass (Rodessa)	20	8,011	1	1	28	29
Harrison	3	45	0	1	3	4
Marion	7	234	2	1	7	8
Panola	0	0	0	1	3	4
Sabine	0	0	0	0	1	1
Shelby	0	0	0	0	2	2
Ttl. Apr.	31	8,290	4	4	48	52
Ttl. Mar.	33	13,548	4	12	69	81
Difference	2	5,258	0	8	21	29

Gas production: Cass County, 10,000,000 ft.; Marion County, 50,000,000 ft.

FLORIDA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Kay	0	0	0	1	0	1
Lake	0	0	0	0	2	2
Nassau	0	0	0	0	1	1
Polk	0	0	0	1	0	1
Hillsborough	0	0	0	0	1	1
Ttl. Apr.	0	0	0	2	4	6
Ttl. Mar.	0	0	0	0	4	4
Difference	0	0	0	2	0	2

TEXAS PANHANDLE

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Briscoe	0	0	0	0	1	1
Carson	5	2,194	0	1	0	1
Childress	0	0	0	1	0	1
Collingsworth	1	0	1	0	2	2
Dallam	0	0	0	0	1	1
Deaf Smith	1	0	1	0	1	1
Gray	24	10,744	1	14	51	65
Hutchinson	21	8,463	0	24	63	87
Moore	6	82	0	3	22	25
Potter	0	0	0	0	1	1
Roberts	0	0	0	0	2	2
Wheeler	4	10	0	2	13	15
Ttl. Apr.	62	21,493	3	45	157	202
Ttl Mar.	55	22,024	5	61	134	195
Difference	7	531	2	16	23	7

April gas well completions: Carson, 1; Hutchinson, 2; Moore, 5; Wheeler, 3.

WEST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Andrews	2	1,022	0	5	12	17
Bailey	0	0	0	1	0	1
Brewster	0	0	0	0	2	2
Cochran	0	0	0	0	1	1
Coke	0	0	0	1	2	3
Crane	16	8,527	5	6	23	29
Crockett	0	0	0	0	2	2
Dawson	0	0	0	0	2	2
Ector	36	29,552	0	28	89	117
Edwards	0	0	0	0	1	1
El Paso	0	0	0	0	1	1
Fisher	3	202	1	4	6	10
Gaines	1	0	1	2	4	6
Garza	0	0	0	0	2	2
Glasscock	4	1,371	1	1	2	3
Howard	4	2,219	0	7	22	29
Hudspeth	0	0	0	0	1	1
Jeff Davis	0	0	0	0	1	1
Jones	21	4,424	7	6	33	39
Kimble	0	0	0	1	0	1
Loving	1	76	0	2	4	6

Mitchell	0	0	0	0	1	1
Pecos	6	58	4	0	0	0
Presidio	0	0	0	0	2	2
Reagan	0	0	0	0	2	2
Runnels	0	0	0	0	3	3
Reeves	0	0	0	0	1	1
Schleicher	0	0	0	0	2	2
Scurry	0	0	0	0	3	3
Taylor	1	3	0	0	3	3
Terry	0	0	0	0	2	2
Upton	21	15,725	0	12	40	52
Ward	41	54,795	3	13	64	77
Winkler	58	51,661	0	19	69	88
Yoakum	0	0	0	0	3	3
Ttl. Apr.	215	169,535	22	108	405	513
Ttl. Mar.	266	235,334	30	123	423	546
Difference	51	65,799	8	15	18	33

EAST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Anderson	7	420	1	3	7	10
Angelina	1	5	0	0	7	7
Bowie	1	0	1	0	4	4
Cherokee	2	0	2	0	1	1
Falls	1	30	0	0	0	0
Fannin	1	0	1	1	2	3
Franklin	6	1,559	0	3	5	8
Freestone	0	0	0	0	2	2
Gregg	84	2,713	2	36	36	72
Henderson	4	565	0	4	6	10
Hopkins	7	4,461	0	4	4	8
Houston	1	0	0	2	3	5
Hunt	0	0	0	0	3	3
Kaufman	0	0	0	0	1	1
Lamar	0	0	0	0	2	2
Limestone	0	0	0	0	2	2
Red River	2	0	2	0	2	2
Rusk	50	1,689	0	22	40	62
Smith	12	353	1	7	3	10
Titus	33	10,723	0	6	31	37
Upshur	28	1,172	1	15	25	40
Van Zandt	1	86	0	1	3	4
Wood	2	0	2	0	0	0
Ttl. Apr.	243	23,776	13	104	189	293
Ttl. Mar.	245	17,892	17	82	185	267
Difference	2	5,884	4	22	4	26

April gas well completions: Anderson, 2; Houston, 1.

CENTRAL AND NORTH TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Archer	44	995	24	2	19	21
Baylor	1	0	1	0	0	0
Brown	1	0	1	2	2	4
Callahan	2	0	2	2	1	3
Clay	7	75	5	1	6	7
Coleman	1	0	1	1	4	5
Collin	0	0	0	0	2	2
Cooke	18	847	2	7	13	20
Denton	2	66	2	1	6	7
Eastland	2	0	2	1	8	9
Foard	0	0	0	0	2	2
Grayson	2	25	1	0	4	4
Hardeman	0	0	0	0	1	1
Jack	43	7,981	6	23	49	72
McCulloch	1	0	1	0	2	2
Montague	13	1,072	1	1	20	21
Palo Pinto	1	0	1	0	6	6
Shackelford	16	577	8	5	20	25
Stephens	4	73	1	1	2	3
Tarrant	0	0	0	0	2	2
Throckmorton	1	0	1	0	1	1
Wichita	34	2,296	14	2	19	21
Wilbarger	7	1,180	1	0	18	18
Wise	0	0	0	0	2	2
Young	22	2,189	14	8	32	40
Ttl. Apr.	223	17,376	89	57	241	298
Ttl. Mar.	255	28,466	107	73	229	302
Difference	32	11,070	18	16	12	4

April gas completions: Cooke County, 1; Jack County, 2; Shackelford County, 1; Stephens County, 1.

SOUTHWEST TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Agua Dulce	0	0	0	1	2	3
Alta Mesa	2	335	0	0	2	2
Alta Verde	0	0	0	0	1	1
Alworth	1	0	1	0	1	1
Baldwin	0	0	0	0	1	1
Barbacoas	1	0	1	1	0	1
Bentonville	1	0	1	1	0	1
Branyon	6	4,550	1	2	4	6
Byersville	0	0	0	0	1	1
Chapman Ranch	1	430	0	0	2	2
Charamousca	4	250	1	0	2	2
Chicon Lake	1	1	0	0	0	0
Clara Driscoll	1	100	0	1	1	2
Cole	2	50	1	0	1	1
Colmena	4	360	0	1	1	2
Cooksey	0	0	0	0	1	1
Cuellar	2	0	0	0	1	1
Darst Creek	6	1,510	0	4	9	13
Driscoll	1	165	0	1	0	1
Dunlap	0	0	0	1	1	2
Escobas	11	345	3	2	2	4
Flour Bluff	5	730	0	0	6	6
Foley	1	0	1	0	0	0
Govt. Wells	2	40	1	1	2	3
Haynes	9	185	4	1	2	3
Hoffman	6	465	1	1	1	2
Hords Creek	0	0	0	1	0	1
Jacob	1	50	0	0	0	0
Killam	1	150	0	0	2	2
Kingsville	1	0	1	0	1	1
Kohler	2	20	1	1	2	3
Labbe	1	0	1	0	0	0
La Blanca	1	50	0	1	0	1
La Sal Vieja	0	0	0	0	1	1
Las Mestanas	1	0	1	1	0	1
Loma Novia	15	1,820	4	3	2	5
London	2	190	1	1	1	2
Lopena	1	0	0	1	0	1
Lopez	20	4,640	2	2	3	5
Los Olmos	2	0	2	0	0	0
Macdonna	1	2	0	0	0	0
McCampbell	3	265	1	2	7	9
Midway	1	265	0	1	0	1
N. Pettus	0	0	0	1	0	1
N. Sweden	1	192	0	1	0	1
Oakville	1	60	0	0	0	0
O'Hern	12	4,600	3	2	1	3
Palangana	0	0	0	1	1	2
Pearsall	0	0	0	0	1	1
Piedra Lumbre	4	675	0	0	2	2
Plummer	1	20	0	1	0	1
Plymouth	4	350	2	0	4	4
Ricaby	2	600	0	0	1	1
Rio Grande City	0	0	0	0	2	2
Samfordyce	4	200	2	2	1	3
Sandia	2	50	1	1	1	2
Sarnosa	1	0	1	0	0	0
Saxet	13	2,625	2	4	34	38
Saxet Heights	4	615	0	2	2	4
Seven Sisters	10	2,450	2	1	3	4
Slick	1	125	0	0	0	0
Stratton	0	0	0	0	1	1
Strouch	2	150	1	0	1	1
Sullivan	0	0	0	0	2	2
Sweden	1	0	1	0	2	2
Taft	5	595	0	1	4	5
Thomas-Lockhart	1	65	0	1	0	1
Von Ormy	1	5	0	0	0	0
W. Premont	8	475	1	2	3	5
Zoborowski	1	500	0	0	0	0
Miscellaneous	25	5	24	15	48	63
Ttl. Apr.	224	31,325	70	67	177	244
Ttl. Mar.	315	38,005	81	79	187	266
Difference	91	6,680	11	12	10	22

(April gas well completions: Colmena, 1; Cuellar, 2; Lopena, 1; Lopez, 2; Samfordyce, 1; West Premont, 3.)

ROCKY MOUNTAIN AREA

New Mexico

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Lea	61	90,775	0	21	109	130
Eddy	7	367	4	3	14	17
Roosevelt	1	0	1	0	2	2
Chaves	0	0	0	0	2	2
Dona Ana	0	0	0	0	1	1
Curry	0	0	0	0	1	1
Otero	0	0	0	0	1	1
Bernalillo	0	0	0	0	2	2
McKinley	0	0	0	0	6	6
Santa Fe	0	0	0	0	2	2
San Miguel	0	0	0	0	3	3
San Juan	0	0	0	0	5	5
Socorro	0	0	0	0	1	1
Valencia	0	0	0	0	2	2
Ttl. Apr.	69	91,142	5	24	151	175
Ttl. Mar.	55	52,419	1	18	127	145
Difference	14	38,723	4	6	24	30

April gas well completions: Lea, 1.

Montana

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Big Horn	2	0	0	0	1	1
Carbon	0	0	0	0	3	3
Fallon	0	0	0	0	2	2
Fergus	0	0	0	0	7	7
Glacier	3	165	1	4	12	16
Liberty	1	0	0	0	0	0
Petroleum	0	0	0	0	3	3
Phillips	0	0	0	0	3	3
Pondera	0	0	0	1	3	4
Toole	5	230	1	2	14	16
Yellowstone	0	0	0	1	1	2
Miscellaneous	0	0	0	0	7	7
Ttl. Apr.	11	395	2	8	56	64
Ttl. Mar.	8	300	0	7	52	59
Difference	3	95	2	1	4	5

(Two gas wells were completed in Big Horn County; one in Liberty County.)

Nebraska

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Ttl. Apr.	0	0	0	0	3	3
Ttl. Mar.	0	0	0	0	3	3
Difference	0	0	0	0	0	0

Utah

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Ttl. Apr.	0	0	0	2	7	9
Ttl. Mar.	0	0	0	2	7	9
Difference	0	0	0	0	0	0

Colorado

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Adams	0	0	0	0	2	2
Archuleta	0	0	0	0	6	6
La Plata	0	0	0	0	2	2
Larimer	1	0	1	0	1	1
Las Animas	0	0	0	0	2	2
Moffat	0	0	0	0	4	4
Park	0	0	0	0	3	3
Miscellaneous	0	0	0	0	11	11
Ttl. Apr.	1	0	1	0	31	31
Ttl. Mar.	1	0	1	0	30	30
Difference	0	0	0	0	1	1

Wyoming

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Albany	0	0	0	0	3	3
Big Horn	1	300	0	2	6	8
Carbon	0	0	0	1	6	7
Converse	0	0	0	1	4	5
Fremont	0	0	0	1	3	4
Lincoln	0	0	0	0	4	4
Natrona	0	0	0	1	5	6
Niobrara	2	4,560	0	2	8	10
Park	0	0	0	1	1	2
Uinta	0	0	0	1	2	3
Washakie	0	0	0	0	5	5
Weston	2	2	0	1	2	3
Miscellaneous	0	0	0	2	3	5
Ttl. Apr.	5	4,862	0	13	52	65
Ttl. Mar.	14	4,768	7	5	48	53
Difference	9	94	7	8	4	12

ILLINOIS FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Bond	0	0	0	0	2	2
Bureau	0	0	0	0	1	1
Christian	0	0	0	0	1	1
Clark	1	0	1	1	3	4
Clay	0	0	0	0	2	2
Clinton	2	60	1	2	3	5
Coles	0	0	0	0	1	1
Crawford	1	0	1	0	2	2
DeKalb	0	0	0	1	0	1
Edwards	0	0	0	0	1	1
Effingham	0	0	0	1	0	1
Fayette	0	0	0	0	1	1
Greene	0	0	0	0	1	1
Hancock	0	0	0	0	1	1
Hardin	0	0	0	0	1	1
Iroquois	0	0	0	0	1	1
Jasper	0	0	0	0	3	3
Jefferson	0	0	0	0	1	1
Kane	0	0	0	0	1	1
Lawrence	1	0	0	1	2	3
McDonough	1	3	0	1	1	2
Madison	0	0	0	0	1	1
Marion	1	72	0	1	6	7
Massac	0	0	0	0	1	1
Perry	0	0	0	0	1	1
Pike	0	0	0	0	1	1
Rock Island	0	0	0	0	1	1
St. Clair	1	0	0	1	0	1
Vermilion	0	0	0	0	1	1
Wabash	1	75	0	0	0	0
Washington	0	0	0	0	2	2
Wayne	0	0	0	0	3	3
Will	0	0	0	0	1	1
Ttl. Apr.	9	210	3	9	47	56
Ttl. Mar.	11	202	3	21	32	53
Difference	2	8	0	12	15	3

April gas well completions: Lawrence, 1; St. Clair, 1.

INDIANA FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Daviess	2	0	2	0	3	3
Decatur	1	0	0	1	2	3
DeKalb	0	0	0	0	1	1
Gibson	2	4	1	1	2	3
Hancock	0	0	0	0	2	2
Harrison	0	0	0	0	1	1
Hamilton	0	0	0	0	2	2
Jay	0	0	0	0	2	2
Knox	1	0	0	1	4	5
Martin	0	0	0	0	1	1
Perry	1	3	0	2	2	4
Pike	0	0	0	0	5	5
Posey	1	0	1	1	1	2
Randolph	0	0	0	0	1	1
Ripley	0	0	0	0	1	1
Shelby	0	0	0	0	2	2
Spencer	2	8	1	1	2	3
Sullivan	0	0	0	1	1	2
Vanderburg	3	5	2	1	3	4
Vigo	0	0	0	1	2	3
Warrick	0	0	0	0	2	2
Ttl. Apr.	13	20	7	10	42	52
Ttl. Mar.	3	0	2	6	43	49
Difference	10	20	5	4	1	3

(April gas wells completions: Decatur, 1; Knox, 1.)

CENTRAL OHIO FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Ashland	1	0	1	2	7	9
Ashtabula	1	0	1	0	1	1
Athens	6	3	1	4	12	16
Belmont	1	0	0	2	5	7
Coshocton	1	0	1	0	5	5
Cuyahoga	0	0	0	0	2	2
Delaware	0	0	0	0	1	1
Fairfield	1	0	1	1	2	3
Guernsey	13	0	7	8	12	20
Harrison	1	0	0	0	0	0
Huron	3	2	0	4	4	8
Holmes	1	0	0	2	4	6
Hocking	2	30	0	2	3	5
Knox	5	0	2	4	7	11
Lawrence	0	0	0	0	1	1
Licking	4	9	1	2	10	12
Lorain	2	0	0	4	7	11
Medina	4	1	2	1	4	5
Meigs	12	0	6	5	10	15
Morgan	5	2	2	2	5	7
Monroe	6	3	1	3	8	11
Muskingum	3	0	0	2	3	5
Noble	2	0	1	2	9	11
Perry	5	45	1	3	4	7
Portage	0	0	0	0	1	1
Richland	0	0	0	0	2	2
Stark	4	0	0	3	9	12
Summit	0	0	0	1	7	8
Tuscarawas	2	0	1	1	6	7
Wayne	1	0	0	1	6	7
Washington	14	14	3	8	10	18
Vinton	3	5	0	0	3	3
Ttl. Apr.	103	114	32	67	170	237
Ttl. Mar.	84	174	21	76	166	242
Difference	19	60	11	9	4	5

April gas well completions: Athens, 3; Belmont, 1; Guernsey, 6; Harrison, 1; Huron, 2; Holmes, 1; Hocking, 1; Knox, 3; Licking, 1; Lorain, 2; Medina, 1; Meigs, 6; Morgan, 2 Monroe, 3; Muskingum, 3; Noble, 1; Perry, 3; Stark, 4; Tuscarawas, 1; Wayne, 1; Washington, 4; total, 50.

LIMA FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Allen	0	0	0	1	0	1
Darke	0	0	0	0	1	1
Hancock	0	0	0	0	3	3
Hardin	0	0	0	0	4	4
Fulton	0	0	0	0	2	2
Henry	1	10	0	1	1	2
Sandusky	1	2	0	0	2	2
Seneca	1	0	0	2	4	6
Shelby	1	0	1	1	1	2
Wood	0	0	0	0	6	6
Wyandot	0	0	0	0	2	2
Mercer	0	0	0	0	1	1
Putnam	0	0	0	0	3	3
Logan	0	0	0	0	2	2
Lucas	0	0	0	0	2	2
Ttl. Apr.	4	12	1	5	34	39
Ttl. Mar.	8	54	1	7	32	39
Difference	4	42	0	2	2	0

(One gas well was completed in Seneca County.)

KENTUCKY FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Henderson	0	0	0	0	5	5
Johnson	0	0	0	0	6	6
McLean	10	450	4	11	21	32
Ohio	6	195	1	8	21	29
Warren	0	0	0	2	2	4
Wayne	1	25	0	8	15	23
Ttl. Apr.	17	670	5	29	70	99
Ttl. Mar.	9	300	1	29	74	103
Difference	8	370	4	0	4	4

April gas well completions: McLean, 1; Ohio, 1.

MICHIGAN

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Alcona	0	0	0	0	1	1
Allegan	1	90	0	1	2	3
Arenac	4	260	2	9	5	14
Chippewa	0	0	0	1	0	1
Clare	0	0	0	0	1	1
Gladwin	32	26,536	3	38	66	104
Gratiot	2	0	2	5	4	9
Hillsdale	0	0	0	1	1	2
Ingham	0	0	0	0	1	1
Ionia	1	0	1	1	0	1
Iosco	0	0	0	1	0	1
Isabella	11	997	5	6	15	21
Jackson	0	0	0	1	0	1
Kent	0	0	0	0	3	3
Lapeer	0	0	0	1	0	1
Lenawee	0	0	0	0	2	2
Mackinac	1	0	0	1	0	1
Macomb	1	0	0	1	0	1
Mecosta	3	0	0	2	0	2
Midland	9	520	5	6	6	12
Missaukee	0	0	0	0	1	1
Monroe	2	0	2	0	1	1
Montcalm	8	0	8	7	10	17
Muskegon	1	0	1	0	2	2
Oceana	0	0	0	1	0	1
Ogemaw	3	505	0	4	8	12
Ottawa	1	0	1	0	0	0
Osceola	0	0	0	1	0	1
Otsego	0	0	0	2	0	2
Saginaw	0	0	0	1	1	2
St. Clair	1	0	1	1	0	1
Shiawassee	0	0	0	0	1	1
Washtenaw	0	0	0	0	1	1
Wayne	1	0	1	1	2	3
Total Apr.	82	28,908	32	95	132	227
Total Mar.	92	28,940	30	63	115	208
Difference	10	32	2	2	17	19

Gas wells completed: Mecosta County, 1, 17,675,000 feet.

PENNSYLVANIA GRADE FIELDS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dig.	Ttl.
Allegany	98	53	0	6	34	40
Bradford	199	194	0	14	79	93
Venango-Clarion	25	34	1	7	27	34
Butler-Armstrong	5	11	1	3	10	13
N. Y.-Pa. gas area	4	0	1	3	16	19
S.W. Penna.	14	156	0	12	39	51
S.E. Ohio	31	201	7	14	29	63
W. Virginia	66	110	10	27	151	178
Ttl. Apr.	442	759	20	86	405	491
Ttl. Mar.	388	644	35	72	361	433
Difference	54	115	15	14	44	58

Completions include 79 water intake wells in Bradford and 44 in Allegany and 10 pressure wells in Venango-Clarion. Gas wells completed: 3 in N.Y.-Penna. area; 10 in S.W. Pennsylvania; 8 in S.E. Ohio and 45 in West Virginia; total, 66.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S. T. R.	Depth	Status—
Shell Oil Co., No. 1-21 Capitan, Santa Barbara Co.	32- 5-30	2,655	completing
Barnsdall-Rio Grande, No. 19-B Elwood, S. Barbara	15- 4-29	4,543	hd. sh. drlg.
Hancock-Bush, No. 1-B Maria, Santa Barbara Co.	26-10-34	4,420	sd. sh. drlg.
Union Oil Co., No. 1-R Santa Maria, Santa Barbara	21-10-34	1,751	sd. sh. drlg.
Union Oil Co., No. 3-V Santa Maria, Santa Barbara	30-10-33	2,768	sd. sh. drlg.
Union Oil Co., No. 3-23-E Santa Maria, Santa Barbara	23-10-34	3,159	sd. sh. drlg.
Union Oil Co., No. 18 Orcutt, Santa Barbara Co.	26- 9-34	3,583	sd. sh. drlg.
Rice Ranch Oil Co., No. 4 Orcutt, Santa Barbara Co.	23- 9-34	3,694	br. sh. drlg.
Valley Oil Co., No. 1 Casmalia, Santa Barbara Co.	20- 9-34	1,912	cleaning out
Arnold Oil Co., No. 2 Los Alamos, Santa Barbara Co.	8- 8-33	941	sd. sh. drlg.
Moyle, B. A., No. 1 Gato Ridge, Santa Barbara Co.	4- 8-32	3,225	br. sh. drlg.
Barnsdall Oil Co., No. 8 Gato Ridge, Santa Barbara	9- 8-32	2,625	pmp. 980 b.d.
Stewart-Carter Oil Co., No. 1 Gato Ridge, S. Barbara	4- 8-32	2,830	br. sh. drlg.
York Oil Co., No. 3-A Lompoc, Santa Barbara Co.	33- 8-34	1,030	sd. sh. drlg.
Fisher, Dan, No. 1 Cuyama, Santa Barbara Co.	28-11-28	646	sd. sh. drlg.
Oatman Mining Co., No. 1 Mesa, Santa Barbara Co.	28- 4-27	130	sd. sh. drlg.
Calumet Oil Co., No. 16 Shiells, Ventura Co.	3- 3-19	3,310	flow. 25 b.d.
Petroleum Securities, No. 5 Shiells, Ventura Co.	3- 3-19	3,342	sd. sh. drlg.
The Texas Co., No. 129 Shiells, Ventura Co.	4- 3-19	4,812	will deepen
The Texas Co., No. 132 Shiells, Ventura Co.	4- 3-19	3,674	sd. sh. drlg.
Union Oil Co., No. 16 Bardsdale, Ventura Co.	12- 3-20	3,315	sd. sh. drlg.
Condor Oil Co., No. 1 Sespe, Ventura Co.	6- 4-19	1,791	br. sh. drlg.
Ivers, H. A., No. 14 Star, Sespe, Ventura Co.	1- 4-20	612	sd. sh. drlg.
Merchants Pet. Co., No. 7 Sespe, Ventura Co.	1- 4-20	980	pmp. 380 b.d.
Topa Topa Oil Co., No. 2 Sespe, Ventura Co.	33- 5-19	3,451	sd. sh. drlg.
Speik Oil Co., No. 2 Sespe, Ventura Co.	33- 5-19	2,285	hd. sh. drlg.
Colima Oil Co. No. 2 Sespe, Ventura Co.	25- 5-19	2,340	sd. sh. drlg.
Bolsa Chica Oil Co., No. 1-H Temescal, Ventura Co.	5- 4-18	3,442	br. sh. drlg.
Pacific Western Oil Co., No. 8 Temescal, Ventura Co.	4- 4-18	1,791	sd. sh. drlg.
St. Louis Oil Co., No. 3 Ojai, Ventura Co.	13- 4-24	1,360	pmp. 98 b.d.
Vai, Giovani, No. 1 Ojai, Ventura Co.	4- 4-21	280	hd. sd. drlg.
Continental Oil Co., No. 1 Red Mountain, Ventura Co.	7- 3-23	6,897	hd. sh. drlg.
Continental Oil Co., No. 7 San Miguelito, Ventura Co.	23- 3-24	4,995	sd. sh. drlg.
C. C. M. Oil Co., No. 2 Padre Canyon, Ventura Co.	23- 3-24	6,465	redrlg. 3,634
Continental Oil Co., No. 3 Padre Canyon, Ventura Co.	15- 3-24	5,404	hd. sh. drlg.
El Rio Oil Co., No. 1 Oxnard, Ventura Co.	6- 1-21	1,991	sd. sh. drlg.
Tide Water A. O. Co., No. 31 V.L.W., Ventura, Ventura	24- 3-23	1,533	sd. sh. drlg.
Tide Water A. O. Co., No. 29 Lloyd, Ventura Ventura	27- 3-23	6,564	sd. sh. drlg.
Tide Water A. O. Co., No. 60 Lloyd, Ventura, Ventura	27- 3-23	5,083	recmtd 5,076
Tide Water A. O. Co., No. 64 Lloyd, Ventura, Ventura	27- 3-23	6,390	sd. sh. drlg.
Tide Water A. O. Co., No. 66 Lloyd, Ventura, Ventura	27- 3-23	4,995	recmtd 4,970
Tide Water A. O. Co., No. 81 Lloyd, Ventura, Ventura	27- 3-23	7,600	rigging up
Tide Water A. O. Co., No. 137 Lloyd, Ventura, Ventura	27- 3-23	6,676	hd. sh. drlg.
Shell Oil Co., No. 91 Taylor, Ventura, Ventura Co.	30- 3-23	3,942	sd. sh. drlg.
Shell Oil Co., No. 35 Gosnell, Ventura, Ventura Co.	28- 3-23	8,767	redrlg. 8,420
General Pet. Corp., No. 17 Barnard, Ventura, Ventura	23- 3-23	7,030	redrlg. 6,900
Den Petroleum Co., No. 1 Devils Den, Kern Co.	20-25-19	4,120	br. sh. drlg.
Goodrum, George, No. 1 Devils Den, Kern Co.	24-25-18	351	sd. sh. drlg.
Santa Ynez Oil Co., No. 1 Temblor, Kern Co.	36-29-20	482	sd. sh. drlg.
Franco Western Oil Co., No. 13 McKittrick, Kern Co.	8-30-22	976	sd. sh. drlg.
Welport Oil Co., No. 18 McKittrick, Kern Co.	26-29-21	1,225	P.B. 1,178
Continental Oil Co., No. 1 Wasco, Kern Co.	8-27-24	9,591	shut in
Seaboard Oil Corp., No. 1 Wasco, Kern Co.	26-27-24	8,550	sd. sh. drlg.
Belridge Oil Co., No. 3-35 North Belridge, Kern Co.	35-27-20	5,998	sd. sh. drlg.
Belridge Oil Co., No 24-35 North Belridge, Kern Co.	35-27-20	7,860	br. sh. drlg.
Belridge Oil Co., No. 62-27 North Belridge, Kern Co.	27-27-20	8,591	flow. 390 b.d.
Belridge Oil Co., No. 21-1 North Belridge, Kern Co.	1-28-20	7,976	cmtd. 7,975
Continental Oil Co., No. 9 North Belridge, Kern Co.	36-27-20	3,194	sd. sh. drlg.
Tide Water Associated, No. 6 North Belridge, Kern	34-27-20	5,050	br. sh. drlg.
The Texas Co., No. 1 Martin, North Belridge, Kern	22-27-20	5,048	cleaning out
Honolulu Oil Corp., No. 33 Round Mountain, Kern	18-28-29	2,037	O.S. drlg.
Pageman & Hennes, No. 1 Round Mountain, Kern	10-28-29	1,520	hd. sd. drlg.
Shell Oil Co., No. 13 Freeman, Round Mountain, Kern	20-28-29	1,840	pmp. 321 b.d.
Shell Oil Co., No. 1-10 Olcese, Round Mountain, Kern	17-28-29	1,878	pmp. 481 b.d.
Shell Oil Co., No 1-11 Olcese, Round Mountain, Kern	17-28-29	1,870	O.S. drlg.
Republic Pet. Co., No. 15-S Kern Front, Kern Co.	24-28-27	2,001	cmtd. 1,766
Tide Water Associated, No. 7 Kern Front, Kern Co.	4-28-27	2,777	pmp. 150 b.d.
Italo Petroleum Co., No. 36 Kern Front, Kern Co.	16-28-27	2,910	O.S. drlg.
Kern River Oilfields, No. 25-2-B Kern Front, Kern	25-28-27	2,051	pmp. 130 b.d.
Apex Pet. Co., No. 10-2 Kern Front, Kern Co.	10-28-27	1,153	sd. sh. drlg.
Oil, Inc., No. 7-2 Kern Front, Kern Co.	13-28-27	1,289	P.B. 1,247
Barnhart & Morrow, No. 3 K.C.L, Kern Front, Kern	11-28-27	1,962	sd. sh. drlg.
California Star Oil Co., No. 7-80 Kern Front, Kern	22-28-27	2,670	pmp. 223 b.d.
H. C. L., No. 1 Kern Front, Kern Co.	36-28-27	1,484	rig. to pump
McDonald & Dearin, No. 4 Kern Front, Kern Co.	10-28-27	981	sd. sh. drlg.
Milburn, E. B., No. 2 Kern Front, Kern Co.	10-28-27	2,177	P.B. 2,125
The Texas Co., No. 7 Lehman, Kern Front, Kern Co.	23-28-27	2,065	sd. sh. drlg.
National Oil Co., No. 12 Gates, Kern Front, Kern Co	2-28-29	1,710	P.B. 1,247
Superior Oil Co., No. 1 Bakersfield, Kern Co.	36-29-28	5,234	P.B. 3,156
Sunset Oil Co., No. 1 Union Avenue, Kern Co.	17-30-28	5,043	sd. sh. drlg.
Ring Oil Co., No. 29-2 Bowles, Mount Poso, Kern Co.	29-26-28	1,520	sd. sh. drlg.
Chevalier, J. J., No. 3 S. P., Mount Poso, Kern Co.	3-27-28	1,475	rig. to pump
Recovery Oil Co., No. 2 S. P., Mount Poso, Kern Co	33-26-28	1,409	pmp. 40 b.d.
Hobbes Oil Co., No. 1 Mount Poso, Kern Co.	14-27-27	1,258	O.S. drlg.
Hub Oil Co., No. 1 Mount Poso, Kern Co.	8-28-28	2,851	sd. sh. drlg.
Shell Oil Co., No. 32 Vedder, Mount Poso, Kern Co.	9-27-28	1,689	pmp. 509 b.d.
Shell Oil Co., No. 12 Vedder-Rall, Mount Poso, Kern	9-27-28	1,624	sd. sh. drlg.
Western Gulf Oil Co., No. 2-W Fruitvale, Kern Co.	21-29-27	3,930	flow. 155 b.d.
Western Gulf Oil Co., No. 3-S.W Fruitvale, Kern Co.	27-29-27	3,406	sd. sh. drlg.
Sandy Oil Co., No. 2 Fruitvale, Kern Co.	26-29-27	2,560	sd. sh. drlg.
Pal-Pen Oil Co., No. 2 Fruitvale, Kern Co.	23-29-27	2,752	sd. sh. drlg.
Crude Oil Prod. Co., No. 1 Fruitvale, Kern Co.	21-29-27	4,136	cmtd. 4,117
Magee, H. H., No. 2 Fruitvale, Kern Co.	23-29-27	3,154	sd. sh. drlg.
Meridian Oil Co., No. 3-T Fruitvale, Kern Co.	23-29-27	3,113	sd. sh. drlg.
American Expl. Co, No. 1-G Mountain View, Kern	18-30-29	4,792	P.B. 4,722
Savoy Oil Co., No. 2-W Mountain View, Kern Co.	34-30-29	1,546	sd. sh. drlg.
Ohio Oil Co., No. 5-D Mountain View, Kern Co.	33-30-29	2,650	sd. sh. drlg.
Hogan Pet. Co., No. 4 Symons, Mountain View, Kern	5-31-29	6,188	squeeze job
Hogan Pet. Co., No. 3 Bankline, Mountain View, Kern	4-31-29	2,191	sd. sh. drlg.
Greer, P. H., No. 2 Perrel, Mountain View, Kern Co.	9-31-29	2,652	sd. sh. drlg.
General Pet. Corp., No. 1-F Mountain View, Kern Co	19-30-29	4,852	flow. 360 b.d.
Mohawk Pet. Co., No. 4 Earl, Mountain View, Kern	4-31-29	3,154	sd. sh. drlg.
Monterey Expl. Co., No. 6 Duff, Edison, Kern Co.	15-30-28	3,175	sd. sh. drlg.
Cajalco Pet. Co., No. 1 Brown, Edison, Kern Co.	9-30-30	971	sd. sh. drlg.
Metro Oil Co., No. 1 Edison, Kern Co.	6-30-29	2,575	pmp. 30 b.d.
Arkelo Oil Co, No. 1 Lerdo, Kern Co.	23-28-26	10,050	fish. D.P.
Union Oil Co., No. 1-34 Rio Bravo, Kern Co.	34-28-25	7,573	sd. sh. drlg.
Continental Oil Co., No. 1 Rosedale, Kern Co.	12-29-26	7,190	hd. sd. drlg.
Standard Oil Co., No. 11-2 Greeley, Kern Co.	20-29-26	8,339	P.B. 7,715
Standard Oil Co., No. 11-3 Greeley, Kern Co.	20-29-26	7,820	flo. 3,308 b.d.
Standard Oil Co., No. 11-5 Greeley, Kern Co.	20-29-36	6,983	sd. sh. drlg.
Standard Oil Co., No. 12-1 Greeley, Kern Co.	30-29-26	7,886	sd. sh. drlg.
Union Oil Co., No. 3 San Emidio, Kern Co.	28-11-22	2,050	sd. sh. drlg.
Shell Oil Co., No. 21-14 Old River, Kern Co.	14-30-25	7,441	sd. sh. drlg.
Shell Oil Co., No. 23-30 Ten Section, Kern Co.	30-30-26	8,219	flo. 2,788 b.d.
Ohio Oil Co., No. 2-E Ten Section, Kern Co.	6-30-26	1,520	sd. sh. drlg.
Superior Oil Co., No. 8 Ten Section, Kern Co.	11-30-26	11,761	sd. sh. drlg.
C. C. M. Oil Co., No. 1-W.P. Midway-Sunset, Kern Co.	28-32-23	3,584	P.B. 2,355
C. C. M. Oil Co., No 34-21 Midway-Sunset, Kern Co.	21-32-23	1,780	br. sh. drlg.
B-Zone Oil Co., No. 1 Midway-Sunset, Kern Co.	22-32-23	2,512	br. sd. drlg.
Midcrude Oil Co., No. 2 Midway-Sunset, Kern Co.	22-32-23	2,135	sd. sh. drlg.
Colby, L. W., No. 1 Midway-Sunset, Kern Co.	12-11-24	1,097	sd. sh. drlg.
Standard Oil Co., No. 48-33-D Midway-Sunset, Kern	33-32-24	2,754	sd. sh. drlg.
Standard Oil Co., No. 125-33-D Midway-Sunset, Kern	33-32-24	2,720	sd. sh. drlg.
Shell Oil Co., No. 2 McKeon, Midway-Sunset, Kern Co.	22-32-23	2,117	pmp. 50 b.d.
Shell Oil Co, No. 3 McKeon, Midway-Sunset, Kern Co.	22-32-23	1,651	sd. sh. drlg.
Linderman Oil Corp., No. 1 Midway-Sunset, Kern Co.	22-32-23	2,155	pmp. 25 b.d.
U. S. Pump Co., No. 1 Midway-Sunset, Kern Co.	12-11-24	1,731	pmp. 115 b.d.
Tide Water A. O. Co., No. 5-P.C. Midway-Sunset, Kern	32-31-23	1,533	sd. sh. drlg.
The Texas Co., No. 20 Midway-Sunset, Kern Co.	32-32-24	2,944	recmtd. 2,840
The Texas Co., No. 21 Midway-Sunset, Kern Co.	32-32-24	2,870	recmtd. 2,758
Western Mesa Oil Co., No 35 Midway-Sunset, Kern	14-31-22	1,497	sd. sh. drlg.
General Pet. Corp., No. 49-B Midway-Sunset, Kern	24-31-23	4,424	rigging up
Hancock Oil Co., No. 6 Midway-Sunset, Kern Co.	8-11-23	3,192	test. wet
Ninkovich, Gus, No. 2 Ohio, Midway-Sunset, Kern	23-32-23	921	sd. sh. drlg.
Quality Oil Co., No. 5-W.P. Midway-Sunset, Kern Co.	27-32-23	2,250	pmp. 320 b.d.
Honolulu Oil Corp., No. 54 Midway-Sunset, Kern Co.	14-32-24	3,550	O.S. drlg.
Evans, Hugh, No. 16 Midway-Sunset, Kern Co.	35-32-23	2,230	cleaning out
Reserve Oil & Gas Co., No. 33-1 Tejon, Kern Co.	33-11-19	4,969	idle
Reserve Oil & Gas Co, No. 33-2 Tejon, Kern Co.	33-11-19	4,474	shut in

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., pulling big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sd. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

Reserve Oil & Gas Co., No. 33-3 Tejon, Kern Co.	33-11-19	4,431	shut in
Reserve Oil & Gas Co., No. 33-4 Tejon, Kern Co.	33-11-19	971	sd. sh. drlg.
Reserve Oil & Gas Co., No. 2-6 Tejon, Kern Co.	2-10-19	2,493	sd. sh. drlg.
Ohio Oil Co., No. 2 Tejon, Kern Co.	21-11-19	8,340	br. sh. drlg.
Western Gulf, No. 2 Cantua, Fresno Co.	3-17-15	6,580	will recmt.
Union Oil Co., No. 2 King, Kettleman North, Fresno	29-21-17	8,500	cleaning out
K. N. D. A., No. 4-18-J Kettleman North, Fresno Co.	18-21-17	9,940	sd. sh. drlg.
K. N. D. A., No. 56-28-J Kettleman North, Fresno Co.	28-21-17	7,473	sd. sh. drlg.
K. N. D. A., No 67-28-J Kettleman North, Fresno Co.	28-21-17	4,281	sd. sh. drlg.
K. N. D. A., No. 78-28-J Kettleman North, Fresno Co.	28-21-17	6,800	sd. sh. drlg.
K. N. D. A., No. 2-34-J Kettleman North, Fresno Co.	34-21-17	5,590	br. sh. drlg.
K. N. D. A., No. 32-34-J Kettleman North, Fresno Co	34-21-17	5,960	br. sh. drlg.
K. N. D. A., No. 63-34-J Kettleman North, Fresno Co.	34-21-17	7,865	C.P. 7,776
K. N. D. A., No. 61-4-P Kettleman North, Fresno Co.	4-22-17	7,235	br. sh. drlg.
Standard Oil No. 38-33-J Kettleman North, Fresno	33-21-17	7,975	completing
Standard Oil, No. 81-33-J Kettleman North, Fresno	33-21-17	7,240	sd. sh. drlg.
Standard Oil, No. 4-3-P Kettleman North, Fresno Co	3-22-17	4,532	sd. sh. drlg.
Standard Oil, No. 78-3-P Kettleman North, Kings	3-22-17	7,571	sd. sh. drlg.
Temblor Oil Co., No. 1-B Kettleman Middle, Kings Co.	25-23-18	5,935	redrlg. 5,761
Clare, A. S., No. 1 Corcoran, Kings Co.	30-20-22	988	sd. sh. drlg.
Barnsdall Oil Co., No. 1 K.C.L., San Luis Obispo Co.	1-32-20	5,198	sd. sh. drlg.
Burkholder Oil Co., No. 1 Clay, San Luis Obispo Co.	14-10-26	3,250	sd. sh. drlg.
Calif. Producing Co., No 1 Pattiway, San Luis Obispo	19-10-24	751	sd. sh. drlg.
Temblor Oil Co., No. 1 Panorama, San Luis Obispo	22-32-21	1,365	gr. sd. drlg.
Lewis, A. O., No. 1 Pecho, San Luis Obispo Co.	34-30-10	2,415	idle
Gretna Corp., No. 1 Islay, San Luis Obispo Co.	24-30-10	991	sd. sh. drlg.
Pismo Pet. Co., No. 1 Pismo, San Luis Obispo Co.	5-32-13	4,225	fish. D.P.
Shell Oil Co., No. 1 Pleyto, Monterey Co.	34-24-10	8,994	P.B. 8,750
Shell Oil Co., No. 2 Pleyto, Monterey Co	34-24-10	8,572	sd. sh. drlg.
The Texas Co., No. 2 Eureka, Humboldt Co.	22- 3- 1	7,700	hd. sh. drlg.
Amerada Pet. Co., No. 2 Emigh, Rio Vista, Solano Co.	35- 4- 2	4,505	41,500 m.c.f.
Amerada Pet. Co., No. 1 Marks, Rio Vista, Solano Co.	24- 4- 2	4,280	sd. sh. drlg.
Tide Water A. O. Co., No. 1 Sargent, San Benito Co.	5-12- 4	6,921	P.B. 6,725
Buttes Oilfields, Ltd., No. 1 Kent, Sutter Co	2-15- 1	5,810	sd. sh. drlg.
Jennings, E. P., No. 1 Allensworth, Tulare Co.	4-24-23	2,709	cleaning out
Standard Oil Co., No. 3 McDonald, San Joaquin Co.	24- 2- 4	5,337	flow. gas

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S. T. R.	Depth	Status—
Richfield Oil Co., No. 5 El Segundo, Los Angeles Co.	18- 3-14	7,513	completing
Richfield Oil Co., No. 1 S. F., El Segundo, Los Angeles	18- 3-14	7,640	reaming
Ohio Oil Co., No. 3 El Segundo, Los Angeles Co.	7- 3-14	7,094	blew out
The Texas Co., No 2-2 El Segundo, Los Angeles Co.	17- 3-14	6,597	sd. sh. drlg.
The Texas Co., No. 2 Security, El Segundo, L. Angeles	18- 3-14	7,093	sd. sh. drlg.
Standard Oil Co., No. 1 Refy, El Segundo, Los Angeles	13- 3-15	5,191	sd. sh. drlg.
Republic Petroleum Co., No. 8 El Segundo, L. Angeles	18- 3-14	6,597	sd. sh. drlg.
Union Oil Co., No. 2 El Segundo, Los Angeles Co.	18- 3-14	7,636	flow. 670 b.d.
Signal Finance Co., No. 1 Hawthorne, Los Angeles	10- 3-14	9,395	cleaning out
Calizoo Oil Co., No. 1 S.L.A., Los Angeles Co.	16- 3-13	4,376	hd. sd. drlg.
Abrams, John & Associates, No 1 Torrance, Los Ang.	16- 4-14	4,518	P.B. 4,258
Weber-Butler Oil Co., No. 2 Torrance, Los Angeles	16- 4-14	4,130	sd. sh. drlg.
McLaren & Associates, No. 1 Palos Verdes, L. Angeles	27- 4-14	3,992	cleaning out
Country Club Oil Co., No. 1 Inglewood, Los Angeles	19- 2-14	2,950	redrlg. 2,878
Standard Oil Co., No. 83 Inglewood, Los Angeles Co.	8- 2-14	3,655	cmtd. 3,510
Shell Oil Co., No. 90 Reyes, Dominguez, Los Angeles	33- 3-13	9,397	O.S. drlg.
Shell Oil Co., No. 91 Reyes, Dominguez, Los Angeles	33- 3-13	981	cmtd. 976
Union Oil, No. 50 Callender, Dominguez, Los Angeles	33- 3-13	10,435	recmd. 10,050
Union Oil, No. 52 Callender, Dominguez, Los Angeles	33- 3-13	6,297	sd. sh. drlg.
Union Oil, No. 55 Callender, Dominguez, Los Angeles	33- 3-13	2,590	sd. sh. drlg.
Union Oil Co., No. 7 Carson, Dominguez, Los Angeles	33- 3-13	7,420	sd. sh. drlg.
Union Oil, No. 46 Hellman, Dominguez, Los Angeles	33- 3-13	5,290	cleaning out
Barnsdall Oil Co., No. 12 O'Dea, Rosecrans, L. Angeles	18- 3-13	6,054	cmtd. 6,035
Union Oil Co., No. 16 Rosecrans, Los Angeles Co.	18- 3-13	5,970	sd. sh. drlg.
Universal Consd., No. 1-T Rosecrans, Los Angeles Co.	18- 3-13	605	sd. sh. drlg.
Metropolitan Oil Co., No. 1 Playa Del Rey, L. Angeles	34- 2-15	5,897	sd. sh. drlg.
Union Oil Co., No. 17 D.R., Playa Del Rey, L. Angeles	27- 2-15	5,900	sd. sh. drlg.
Burt, A. G., No. 1 Newhall, Los Angeles Co.	36- 4-17	1,354	sd. sh. drlg.
Barnsdall Oil Co., No. 1 S. F., Newhall, Los Angeles	26- 4-17	6,472	cleaning out
Holbrook Pet. Co., No. 1 Newhall, Los Angeles Co.	28- 4-16	5,286	sd. sh. drlg.
Premier Pet. Co., No. 1 Wilmington, Los Angeles Co.	33- 4-13	3,500	cmtd. 3,197
General Pet. Corp., No. 3 Ford, Wilmington, Los A.	4- 5-13	4,760	deep test
General Pet. Corp., No. 6 Ford, Wilmington, Los A.	4- 5-13	1,560	sd. sh. drlg.
General Pet. Corp., No. 7 Ford, Wilmington, Los A.	4- 5-13	2,395	sd. sh. drlg.
General Pet. Corp., No. 8 Ford, Wilmington, Los A.	4- 5-13	2,485	sd. sh. drlg.
General Pet. Corp., No. 1-I Wilmington, Los Angeles	4- 5-13	3,550	flow. 420 b.d.
General Pet. Corp., No. 3-P Wilmington, Los Angeles	4- 5-13	1,750	sd. sh. drlg.
Hall, Inc., No. 20-7 Wilmington, Los Angeles Co.	33- 4-13	2,562	sd. sh. drlg.
O'Donnell, J. E., No. 41 Wilmington, Los Angeles Co.	32- 4-13	2,191	sd. sh. drlg.
Getty Oil Co., No. 9 Wilmington, Los Angeles Co.	33- 4-13	3,352	flow. 325 b.d.
Holly Dev. Co., No. 1 Wilmington, Los Angeles Co.	33- 4-13	2,570	sd. sh. drlg.
Jergins Trust, No. 1 Wilmington, Los Angeles Co.	34- 4-13	3,025	sd. sh. drlg.
Jergins Trust, No. 2 Wilmington, Los Angeles Co.	34- 4-13	3,042	sd. sh. drlg.
Jergins Trust, No. 7 Wilmington, Los Angeles Co.	34- 4-13	2,450	sd. sh. drlg.
Jergins Trust, No. 12 Wilmington, Los Angeles Co.	34- 4-13	2,198	sd. sh. drlg.
Midland Pet. Co., No. 5 Wilmington, Los Angeles Co.	5- 5-13	2,191	redrlg. 1,590
Leal, G. V., No. 1 Wilmington, Los Angeles Co.	33- 4-13	3,200	sd. sh. drlg.
Olympic Ref. Co., No. 1 fee, Wilmington, Los Angeles	33- 4-13	3,510	sd. sh. drlg.
Bankline Oil Co., No 1 Chuck, Wilmington, Los A.	33- 4-13	3,442	flow. 297 b.d.
Bankline Oil Co., No. 12-P.T. Wilmington, Los A.	34- 4-13	3,450	flow. 345 b.d.
Sonwell Oil Co., No. 1 Wilmington, Los Angeles Co.	32- 4-13	2,476	sd. sh. drlg.
Pacific Western, No. 2-P Wilmington, Los Angeles	32- 4-13	3,555	sd. sh. drlg.
Macmillan Pet. Co., No. 1-H Wilmington, Los Angeles	33- 4-13	3,595	flow. 695 b.d.
Packard Pet. Co., No. 20-8-1 Wilmington, Los Angeles	33- 4-13	2,184	sd. sh. drlg.
Interstate Inv. Corp., No. 1-K Wilmington, Los A.	5- 5-13	3,660	O.S. drlg.
Union Pacific R.R., No. 6 Wilmington, Los Angeles	33- 4-13	2,552	sd. sh. drlg.
Union Pacific R.R., No. 11 Wilmington, Los Angeles	4- 5-13	2,780	sd. sh. drlg.
Union Pacific R.R., No. 12 Wilmington, Los Angeles	4- 5-13	2,491	sd. sh. drlg.
Union Pacific R.R , No. 13 Wilmington, Los Angeles	4- 5-13	2,188	sd. sh. drlg.
Union Pacific R.R., No. 14 Wilmington, Los Angeles	3- 5-13	3,934	P.B. 3,661
Union Pacific R.R., No. 15 Wilmington, Los Angeles	34- 4-13	2,382	sd. sh. drlg.
Union Pacific R.R., No. 17 Wilmington, Los Angeles	4- 5-13	3,523	sd. sh. drlg.
Union Pacific R.R., No. 18 Wilmington, Los Angeles	4- 5-13	3,483	flow. 780 b.d.
Wilbur, V.R.G., No. 1-W Wilmington, Los Angeles	28- 4-13	3,580	bailing
Ring Oil Co., No. 3 Wilmington, Los Angeles Co.	33- 4-13	1,520	sd. sh. drlg.
Royalty Service Corp., No 20-5 Wilmington, Los A.	33- 4-13	3,575	sd. sh. drlg.
Royalty Service Corp., No. 16-7 Wilmington, Los A.	33- 4-13	2,982	sd. sh. drlg.
Royalty Service Corp., No. 5-C Wilmington, Los An.	33- 4-13	3,610	sd. sh. drlg.
Royalty Service Corp., No. 7-C Wilmington, Los A.	32- 4-13	1,965	sd. sh. drlg.
Royalty Service Corp., No. 3-N Wilmington, Los A.	33- 4-13	2,533	sd. sh. drlg.
Royalty Service Corp., No. 4-N Wilmington, Los A.	33- 4-13	2,590	sd. sh. drlg.
Gilmore Oil Co., No. 23-7 Wilmington, Los Angeles	33- 4-13	3,158	sd. sh. drlg.
Godsford Oil Co., No. 1-W Wilmington, Los Angeles	33- 4-13	2,998	sd. sh. drlg.
Sunrise Pet. Co., No. 1 Wilmington, Los Angeles Co.	33- 4-13	3,551	sd. sh. drlg.
Richfield Oil Co., No. 2 Ciocca, Montebello, Los A.	5- 2-11	2,542	sd. sh. drlg.
Richfield Oil Co., No. 1 Estrada, Montebello, Los A.	5- 2-11	3,885	pmp. dry
The Texas Co., No. 16 Baldwin, Montebello, Los A.	6- 2-11	5,738	pmp. 15 b.d.
The Texas Co., No. 17 Baldwin, Montebello, Los A.	6- 2-11	2,471	sd. sh. drlg.
Universal Consd., No. 1-F Montebello, Los Angeles	5- 2-11	4,000	sd. sh. drlg.
The Texas Co., No. 21-F Long Beach, Los Angeles Co	19- 4-12	3,185	sd. sh. drlg.
Hilltop Oil Co., No. 1 Long Beach, Los Angeles Co.	19- 4-12	2,528	pmp. 40 b.d.
Clayton, G. L., No. 1 North Long Beach, Los Angeles	32- 3-12	4,797	sd. sh. drlg.
Caltana Corp., No. 1 Artesia, Los Angeles Co.	11- 4-12	6,234	dry; abd.
General Pet. Corp., No. 27 Santa Fe Springs, Los A.	5- 3-11	4,246	sd. sh. drlg.
Hathaway Co., No. 2 Fulton, Santa Fe Springs, L. A.	6- 3-11	4,615	pmp. 55 b.d.
Union Oil Co., No 100 Santa Fe Springs, Los Angeles	6- 3-11	10,789	fish. D.P.
Standard Oil Co., No. 28 S. G. Seal Beach, Orange Co.	11- 5-12	5,401	sd. sh. drlg.
Tide Water A. O. Co., No. 16-B Seal Beach, Orange Co.	11- 5-12	3,474	sd. sh. drlg.
Lucky Strike Oil Co., No. 8 Huntington, Orange Co.	2- 6-11	2,630	milling
Holly Oil Co., No. 7-A Huntington, Orange Co.	35- 5-11	3,975	sd. sh. drlg.
Re-Mine Oil Co., No. 2 Huntington, Orange Co.	2- 6-11	4,570	pmp. 25 b.d.
The Texas Co., No. 9 Brown, Huntington, Orange Co.	11- 6-11	2,181	sd. sh. drlg.
Tide Water A. O., No. 55 M. K. Huntington, Orange	2- 6-11	3,474	sd. sh. drlg.
West American, No. 14 Huntington, Orange Co.	34- 5-11	3,850	sd. sh. drlg.
Orco Oil Co., No. 5 Huntington, Orange Co.	2- 6-11	4,697	redrlg. 3,897
Union Oil Co., No. 9-C Huntington, Orange Co.	34- 5-11	1,971	sd. sh. drlg.
Union Oil Co., No. 10-C Huntington, Orange Co.	34- 5-11	4,254	pmp. 75 b.d.
Commander Oil Co., No. 1 Newport, Orange Co.	29- 6-10	7,420	br. sh. drlg.
Fullerton Oil Co., No. 20 Brea, Orange Co.	2- 3-10	4,010	pmp. 103 b.d.
Standard Oil, No. 63 Emery, West Coyote, Orange Co.	24- 3-11	4,173	completing
Hogan Pet. Co., No. 1 McNally, W. Coyote, Orange Co.	23- 3-11	5,352	sd. sh. drlg.
Bandini Petroleum Co., No. 1-B East Coyote, Orange	24- 3-10	3,175	sd. sh. drlg.
Bartholomae Oil Co., No. 4 East Coyote, Orange Co.	22- 3-10	2,774	sd. sh. drlg.
Kelly, Thomas, No. 11 East Coyote, Orange Co.	24- 3-10	2,831	sd. sh. drlg.
Union Oil Co., No. 20 Hole, East Coyote, Orange Co.	22- 3-10	4,101	sd. sh. drlg.
Standard Oil Co., No. 2-10 East Coyote, Orange Co.	22- 3-10	1,850	sd. sh. drlg.
Shell Oil Co., No. 1 Mathis, Anaheim, Orange Co.	23- 4-10	5,961	dry; abd.
Joseph, Arthur, No. 1 Richfield, Orange Co.	29- 3- 9	3,668	cleaning out
Union Oil Co., No. 10 Morse, Richfield, Orange Co.	29- 3- 9	1,943	sd. sh. drlg.
Principal Oil Co., No. 1 Richfield, Orange Co.	36- 3- 9	2,176	sd. sh. drlg.
Signet Oil Co., No. 1 Yorba, Orange Co.	21- 3- 9	962	sd. sh. drlg.
West American Oil Co., No. 1 Tustin, Orange Co.	14- 5- 9	1,290	sd. sh. drlg.

KANSAS

Week Ending May 15 (Descriptions are East unless marked otherwise)

Barber County

Barbara Oil Co. No. 1-27 Holmes, C NW NW sec. 27-33-13w. Rig.

Pryor & Lockhart No. 1 Gant, C SE sec. 7-31-13w. R.U.R.

Barton County

S. E. Bailey No. 1 Hammeke, NE NE SW sec. 12-18-12w. O.W.D.D.; S.D. 2,100 ft.

C. L. Carlock No. 1 Ehly, NE NE SE sec. 5-18-11w. Sil. 3,350 ft.; T.D. 3,394 ft.; P.B. 27 ft.; C.O.

Continental Oil Co. No. 1 Lamatsch, SW NE NE sec. 26-17-12w. Anhy. 720 ft.; drlg. 2,810 ft.

George Dickey et al No. 1 Boger, SE SE NE sec. 15-16-13w. K.C. 3,115 ft.; C.O. 3,130 ft.

J. B. Hanna No. 1 Luce, SW cor. sec. 21-20-13w. Rig.

Magnolia Pet. Co. No. 1 Zink, NW NW SE sec. 13-18-11w. Drlg. 2,515 ft.

C. L. Price et al No. 1 Kraft, SW NW NE sec. 10-17-11w. T.D. 3,247 ft. (cor.); acidized.

Republic Nat. Gas Co. and Continental Oil Co. No. 1 Moeder, NE NE SW sec. 25-17-13w. Drlg. 305 ft.

Stanolind O. & G. Co. No. 1 Meggars, SW cor. sec. 21-20-11w. R.U.S.T. 3,341 ft.

Stanolind O. & G. Co. No. 1 Struder, SE SE SW sec. 26-16-13w. Anhy. 854 ft.; drlg. 2,040 ft.

Vickers Pet. Co. et al No. 1 Leibel, SE NE SE sec. 18-18-11w. Cong. 3,385 ft.; drlg. 3,410 ft.

E. F. Wakefield et al No. 1 Scheuerman, NE NE SW sec. 31-16-15w. Drlg. 3,070 ft.

C. H. Weaver et al No. 1 Stumps, NE cor. sec. 3-17-12w. K.C. 3,075 ft.; drlg. 3,180 ft.

Butler County

Kahn et al No. 1-A Madden, SW SW NE sec. 27-23-4. K.C. 2,065 ft.; T.D. 2,212 ft.

Simpson Oil Co. et al No. 1-A Dennis, NE NE SW sec. 15-26-6. Mch.

Maurer & Saco Oil Co. No. 1 Connell, NE NE SW sec. 27-29-5e. R.U.

Vickers Pet. Co. No. 1 Voth, C N½ NE NE sec. 32-24-4e. L. 2,745 ft.; S.D. 3,000 ft.

Chase County

Propp et al No. 1 Fromm, SE cor. sec. 29-18-9e. L. 2,510 ft.; drlg. 2,570 ft.; S.W.

Chautauqua County

Robinson et al, No. 1 Foster, SW cor. sec. 6-33-12. S.D. 200 ft.

Ira Scott et al No. 1 Lamba, SW NW NE sec. 18-33-13. Drlg. 1,530 ft.

E. J. Shaffer No. 1 Nuckolls, NW cor. sec. 12-33-19. Drlg. 1,625 ft.

Cowley County

B. B. Blair et al No. 1 Miller, NE NW SW sec. 14-32-5. R.U.

Bess & Graiapp et al No. 1 Wakefield, NE SE SW sec. 18-30-6. Drlg. 2,450 ft.

Elmer Ash et al No. 1 Bolack, NW NW SE sec. 22-32-6. S.D. 1,702 ft.

Murta & Wilson No. 1 Turner, NE NE NW sec. 30-32-6. Drlg. 1,200 ft.

McCoy et al No. 1 Anderson, SE NW NE sec. 34-34-6. Drlg. 1,535 ft.

Palmer et al No. 1 Ogrosky, SE SE NW sec. 31-32-5. Drlg. 665 ft.

Ryan Consolidated Co. No. 1 Couch, SW SW SE sec. 13-30-5. Bart. 2,796 ft.; pay 2,837-42 ft. T.D.; P. 43 B.O. and 7 B.W.; comp.

Tulsa Oil Co. et al No. 1 Dillon, NW NW NE sec. 28-34-3. Rig.

J. N. Wallace No. 1-A fee, SW SE SE sec. 10-33-4. Drlg. 1,435 ft.

Decatur County

C. L. Bruce et al No. 1 Newbold, C NE SE sec. 34-2s-28w. R.U.R. and S.D.

Edwards County

Royal Pet. Co. et al No. 1 Krupp, NW NW SE sec. 18-24-19w. Anhy. 1,366 ft.; drlg. 3,195 ft.

Ellis County

Billings No. 1 Smith, SE SE NW sec. 14-12-16w. C.O. 2,300 ft.

Bridgeport Machine Co. et al No. 1 Froelick, NW NW SE sec. 4-13-16w. Topeka 2,948-50 ft.; U.R. 8-in.

Elwell and Tree Oil Co. No. 1 Wickham, SW SW NE sec. 10-11-19w. Topeka 3,070 ft.; cg. 3,306 ft.

Ted Kors et al No. 1 Koblitz, SE SW NW sec. 23-12-18w. Pay 3,694-98 ft.; swb. 48 B.O. and swbd. down; T.D. 3,699 ft.; P. 210 B.O. in 24 hrs.

Lario O. & G. Co. et al No. 1 Henderson, SW SW NE sec. 27-11-18w. Drlg. 2,872 ft.

J. J. Muth No. 1 Penney, NW SE SE sec. 29-14-18w. Spd. and S.D.

Noble Pet. Corp. No. 1 O'Laughlin, NW NW SE sec. 13-12-19w. Cong. 3,845 ft.; water 3,855-58 ft.

J. C. Shaffer, Inc., No. 1 Staab, SE cor sec. 25-12-18w. Anhy. 1,370 ft.; drlg. 1,950 ft.

Twin Drlg. Co. et al No. 1 Craig, NE NE SE sec. 6-11-16w. Anhy. 1,140 ft.; drlg. 1,800 ft.

Ellsworth County

Frost et al No. 1 Dolechek, NE NE SW sec. 36-14-8w. K.C. 2,745 ft. (cor.); S.D. 3,008 ft.

Orville Lea No. 1 Larkin, NW cor. sec. 15-16-8w. Anhy. 455 ft.; drlg. 1,395 ft.

Greenwood County

B. & B. Oil Co. No. 1 Webb, C NE SE sec. 3-26-13. Drlg. 760 ft.

L. S. Bolwanz No. 1 Travelers, C SW SW sec. 23-26-10. Drlg. 1,900 ft.

Van Deventer et al No. 1-A Bemis, NE SW SE sec. 12-28-11. S.D. 1,315 ft.

Ward McGinnis et al No. 1 Henly Estate, SW cor. sec. 25-25-9. Drlg. 1,030 ft.

Hamilton County

Denver Prod. & Ref. Co. No. 1 Porter, SW SW NE sec. 30-25-41w. R.U.R.

Harper County

Carter Oil Co. et al No. 1 Selhart Est., C SW NW sec. 4-34-8w. Simp. 5,034 ft.; drlg. 5,110 ft.

Harvey County

Bell O. & G. Co. et al No. 1 Austin, SE NE NE sec. 28-23-1e. Rig.

Shaffer & Shawver No. 1 Hege, NE NE SE sec. 26-22-2w. Drlg. 1,700 ft.

Simpson & Noble et al No. 1 Pierce, SW SE NE sec. 25-22-2w. R.U.

Kearny County

J. L. Murphy No. 1 Masonic Home, C NW sec. 1-26-36w. R.U.R.

Logan County

W. H. Boucher No. 1 Wright, C SE SE sec. 12-15-35w. Miss. 4,655 ft.; S.O. 4,850-60 ft.; drill pipe stuck 4,910 ft.

Lyon County

Davis & Sory No. 1 Byrd, SW SW SE sec. 32-21-11. S.D. 590 ft.

Young et al No. 1-A Murphy, SE NW NE sec. 32-21-11. S.D. 1,380 ft.

McPherson County

C. E. Ash Drilling Co. No. 1 Broman, NE NE NW sec. 19-17-4w. Rig.

Bradley Bros. No. 1 Barnholt, SW SW SE sec. 30-30-5w. U.R. 8-in. 2,668 ft.

Fred C. Frank et al No. 1 Doles, SE NW NE sec. 12-19-1w. S.D. 600 ft.

Smith et al No. 1 Larson, NW NW SW sec. 35-18-5w. Drlg. 1,500 ft.

Wamhoff et al No. 1 Nuse, SE NE SW sec. 18-18-4w. Set 10-in. 110 ft.; W.O.C.

Mitchell County

Geo. Siedhoff et al No. 1 Greiss, SW SW SE sec. 16-8-10w. S.D. 3,002 ft.

Ness County

Jones & Lane No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. Rig.

Newton Dev. Co. No. 1 Tenny, NW NW SE sec. 19-18-25w. T.D. 4,379 ft.; re-running 6-in.

Osborne County

J. E. Waldron No. 1 Neuschwanger, SE NE NW sec. 11-8-14w. Spd. and S.D.

Pawnee County

Capshaw et al No. 1 Riederer, C W½ NW SE sec. 29-21-19w. Sil. 4,480-4,523 ft.; D.&A.

Reno County

Imo O. & G. Co. and others No. 1 Watkins, SE cor. sec. 14-22-7w. Drlg. 1,700 ft.

Clyde Pulse No. 1 Payne, SW NW SE sec. 4-22-7w. Cong. 3,398 ft.; Chat. 3,426 ft.; H.F.W. 3,440 ft., T.D.; P.B. 3,287 ft.; fsg.

Sinclair Prairie Oil Co. No. 1 Natt, NW NW SE sec. 32-26-4w. Chat 3,622 ft.; drlg. 3,882 ft.

Westgate-Greenland Oil Co. No. 1 O'Sullivan, SW SW NE sec. 24-23-5. Viola, 3,843 ft.; drlg. 3,909 ft.

Rice County

Comanche Oil Co. No. 1 Cramm, SW SW SE sec. 15-19-9w. Drlg. 1,500 ft.

L. E. Douglass No. 1 Coyne, NE SE SE sec. 24-21-8w. K.C. 2,948 ft.; drlg. 3,170 ft.

Empire O. & R. Co. No. 1 Bredfeldt, C N½ N½ SW sec. 7-18-9w. Sil. 3,223 ft. (cor.); T.D. 3,240 ft.; 900 ft. O.I.H. in 8 hrs.

John Hanna et al No. 1 Fulton, NW NW NE sec. 24-10-6w. U.R. 8-in. at 3,070 ft.

Hipple et al No. 1 Wernet, NE NE NW sec. 11-20-6w. Drlg. 1,810 ft.

Fred Phillips et al No. 1 Hubenett, SW NW SW sec. 23-20-6w. Drlg. 3,005 ft.

Shell Pet. Corp. et al No. 1 Haxton B, NE NE SW sec. 29-18-9w. Drlg. 1,760 ft.

C. E. W. Skiles et al No. 1 Helmer, NW NW NE sec. 7-19-18w. Drlg. 1,295 ft.

Union Oil & Refining Co. et al No. 1 Baker, SW SW NE sec. 33-20-6w. U.R. 8-in. 3,150 ft.

W. E. Witt et al No. 1 Fair, NW SE SE sec. 4-22-8w. S.D. 1,890 ft.

Rooks County

Basin Oil Co. No. 1 Baxa, NE cor. sec. 23-9-17w. Simp. 3,620-20 ft. T.D.

Brunson Drlg. Co. et al No. 1 Casey, SE SE NE sec. 22-9s-16w. Drlg. 1,565 ft.

C. R. Craft et al No. 1 Ziegler, NE NE SW sec. 8-10-16w. Rig.

Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. T.D. 3,301 ft.; fsg.

S. C. Hoel et al No. 1 Ives, SW SW NE sec. 11-7-18w. S.D. 485 ft.

Jones Bros. No. 1 Wiss, NW cor. sec. 8-10-18w. U.R. 6-in. 3,230 ft.

J. H. Lester No. 1 Methene, SE SE NE sec. 29-10-20w. Cong. 3,702 ft.; S.D. 3,747 ft.

Rush County

Duwe & Brouk No. 1 Lebsack, SE SE NE sec. 13-16-16w. Drlg. 1,380 ft.

S. A. Murphy et al No. 1 Roth, NW NW SW sec. 21-16-18w. Anhy. 1,159 ft.; T.D. 2,605 ft. (cor.); fsg.

Westgate-Greenland Oil Co. et al No. 1 Greenwalt, NW NW NE sec. 19-19-16w. Anhy. 1,220 ft.; drlg. 1,640 ft.

Russell County

Aylward et al No. 1 Jones SE SE NW sec. 23-14-13w. Anhy. 656 ft.; drlg. 805 ft.

Equity Gas Co. No. 1 Harbaugh, NW NE SW sec. 19-13-12w. Drlg. 2,420 ft.

Goldstein and Vernon Oil & Gas Co. No. 1 Steinert Estate, NE SE NW sec. 34-15-15w. Anhy. 960 ft.; S.D. 1,130 ft.

S. M. Murphy et al No. 1 Deines, SE SE SW sec. 36-15-15w. Topeka 2,875 ft.; S.D. 3,075 ft.

Scott County

Olson Drlg. Co. et al No. 1 Nolan, NW NW NE sec. 13-19-33w. Drlg. 3,550 ft.

Sedgwick County

Cameron et al No. 1 Smith, SW SE SE sec. 13-27-2e. Sil. 3,230-72 ft.; fsg.

Roxana Drlg. Co. et al No. 1 Woodman, SW NW SW sec. 26-26-1w. S.D. 2,469 ft.

E. B. Shawver No. 1 Furman, SW NE SE sec. 24-29-3w. T.D. 1,865 ft.; to skid.

Sam Murphy et al No. 1 Thome, SW SW NW sec. 19-28-1w. Simp. 3,720 ft.; Wilcox 3,750 ft.; Sil. 3,796-3,836 ft.; D.&A.

Stafford County

W. P. Faulkner No. 1 Schulz, SE SE NE sec. 6-22-13w. R.U.

Sumner County

John Burton et al No. 1 Springate, NE NE SW sec. 30-33-2e. Rig.

Glimac Oil Co. et al No. 1 Proud, SW SE SE sec. 33-30-1w. Drlg. 793 ft.

Graham et al No. 1 Dawson, NW NW NW sec. 4-33-2w. Base Miss. 4,250 ft.; fsg. 4,255 ft.

Texas Co. No. 1 Harper, NE SW SE sec. 9-20-3w. L. 3,821 ft.; drlg. 4,152 ft.; inc. water.

Trego County

W. I. Southern, Inc., No. 1 Latimer, NW NW SE sec. 19-15-22w. Anhy. 1,695 ft.; drlg. 2,540 ft.

Woodson County

M. B. Allen No. 1 Flack, NE NE NW sec. 1-26-14. Drlg. 1,075 ft.

B. & B. Oil Co. No. 1 Lockard, NW NW NE sec. 2-26-13e. Machine.

Kansas O. & G. Corp. No. 1 Providence, SW SW SE sec. 6-24-15. L. 1,545 ft.; water 1,602 ft.; S.D. 1,643 ft.

Payne County

Bill Riddle No. 1 Van Zandt, NW NW SE sec 16-18-3e. Drlg. 2,300 ft.

Pontotoc County

Caloma Oil Co. No. 1 Brentz, SE NE SW sec. 4-1n-6. T.D. 1,010 ft.; S.D.

Clark Drlg. Co. et al No. 1 Richardson, SE SE NW sec. 30-4-8. Drlg. 95 ft.

W. A. Delaney et al No. 1 Norris, NW NW SE sec. 18-4-8. Set 8-in. 690 ft.; T.D. 700 ft.

Papoose Oil Co. et al No. 1 Jones, NW SE NW sec. 2-4-5. Drlg. 2,185 ft.

Roodhouse et al No. 1 Booth, SE NW SE sec. 20-2-6. Rig.

Southern Oil Co. No. 1 Young, NE NE SE sec. 17-3-7. Machine.

Summit Drlg. Co. et al No. 1 Whittaker, NW NE SE sec. 31-4-6. R.U.R.

Pottawatomie County

Mid-Continent Pet. Corp. No. 1-A Logan, NE NE SE sec. 31-11-5. Wilcox 4,839 ft.; T.D. 4,844 ft.; P.O.P.

Stanolind O. & G. Co. and Amerada Pet. Corp., SW SE SW sec. 32-9-3e. R.U.R.

Pushmataha County

Erle Halliburton et al No. 1 Bagwell, SW NE NE sec. 30-3s-15e. Drlg. 1,320 ft.

Seminole County

Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Reed, SE SW SE sec. 19-10-8. T.D. 3,618 ft.; S.D.O.

J. E. Hall et al No. 1 White, SE NW SE sec. 30-6-8. T.D. 2,610 ft.; P.B. 1,275 ft.; pump 18 B.O. in 24 hrs.; comp.

Sinclair Prairie Oil Co. No. 1 Rossanna, NW NW SW sec. 28-10-8. Wilcox 4,176 ft.; T.D. 4,189 ft.; acd.; F. 1,317 B.O. in 12 hrs., cutting 3.6 per cent water.

A. I. Spears No. 1 Keaton, NW cor. sec. 6-5-8. Cromwell 3,033 ft.; T.D. 3,129 ft.; temp. abd.

Texas County

Cabot Carbon Co. No. 1 Calvert, C sec. 14-3n-16ecm. Drlg. 2,643 ft.

Cabot Carbon Co. No. 1 Castro, C SE sec. 19-3n-17ecm. T.D. 2,570 ft.; 3,600,000 ft. gas at 2,690 ft.; plugging back.

Missouri Valley Gas Corp. No. 1 well, C sec. 17-6n-14ecm. S.D. 2,257 ft.

Washita County

John Koberg No. 1 Harms, NW NW NE sec. 6-10-16w. Drk.

L. P. McWhirter No. 1 fee, NW SW SW sec. 34-8-19w. T.D. 1,810 ft.; S.D.

SOUTHERN OKLAHOMA

Comanche County

E. B. Hane No. 1 Duper, NW cor. sec. 21-2n-13w. S.D. 250 ft. for csg.

Frank Scott No. 1-A Kuntz, SE NE SE sec. 21-4n-11w. Drlg. 2,450 ft.

Jefferson County

A. T. Campbell et al No. 2 Trout, NE SE NE sec. 6-8s-7w. Drlg. 2,190 ft.

Gulf Oil Corp. No. 1 Woodworth, NW NW NE sec. 20-3s-4w. Arbuckle 2,660 ft.; T.D. 3,[illegible]7 ft.; D.&A.

Heenan & Coe et al No. 1 Rose, C SW SW sec. 1-5s-5w. Drlg. 4,205 ft.

Massad & Swansberger No. 1 Barrett, NE cor. SE SE sec. 14-6s-6w. T.D. 1,842 ft.; S.D.

Love County

Sinclair Prairie Oil Co. No. 1 Stockton, SE SE SW sec. 26-6s-2w. T.D. 8,583 ft.; P.B. 6,927 ft.; fsg. for tubg. at 5,288 ft.

Marshall County

Stuart & Taylor No. 1 Chestnut, NE cor. sec. 23-8s-5e. T.D. 788 ft.; P.B. 787 ft.; tested 18 B.O. in 8 hrs.; S.D.

Murray County

O. O. Owens No. 1 Fryer, NE SE NE sec. 34-1s-3e. L. 925 ft.; drlg. 1,310 ft.

Power Oil Co. et al No. 1 Lancaster Trust, C SW NE sec. 10-1s-2e. T.D. 3,438 ft.; P.B. to 3,175 ft.; S.D.

J. Ben Russell No. 1 fee, SE SE NW SE sec. 9-2s-3e. Drlg. 1,910 ft.

Stephens County

Wm. Angle No. 1 Lang, SW SW NE sec. 24-1n-7w. T.D. 3,525 ft.; S.D.O.

Carter Oil Co. No. 1 Harley, C NE NE sec. 24-2s-4w. Viola 5,152 ft.; set 9-in. csg. 5,180 ft.; T.D. 5,206 ft.; W.O.C.

H. J. Edwards No. 1 Frederick, SW cor. NE SE NW sec. 31-2n-8w. T.D. 2,754 ft.; S.D.

Helmerich & Payne No. 1 Graham, SW SW NE sec. 12-1n-5w. T.D. 5,014 ft.; mudded in gas; S.D.

Charles Newsom No. 1 Pfile, SW cor. sec. 1-2s-7w. Set 10-in. csg. 115 ft.; T.D.

Geo. L. Pace et al No. 1 Tah-Su-Dah, SE NW SW sec. 27-1s-9w. T.D. 2,707 ft.; Schlumberger test; wtr.; S.D.O.

Tillman County

Magnolia Pet. Co. No. 1 Brown, SW SE NE sec. 21-3s-18w. Drlg. 4,710 ft.

OKLAHOMA

Week Ending May 15

NORTHERN OKLAHOMA

Alfalfa County

Olson Drlg. Co. et al No. 1 Acre, C SW NE sec. 14-24-11w. O.W.P.B.; C.O. at 5,885 ft.

Beckham County

Carter Oil Co. No. 1 Bingham, NE cor. sec. 31-8-26w. Drlg. 1,226 ft.

Carter Oil Co. No. 1 Porter, C SW SW sec. 36-10-25w. Drlg. 1,820 ft.

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 1,930 ft.; fsg.

Caddo County

Clyde Becker et al No. 1 Pharris, SE SE NW sec. 24-6-12w. Tools on ground.

Cleveland County

W. R. Hollenbeck No. 1 Norman, NW NW NE sec. 17-9-2w. T.D. 6,195 ft.; S.D. for water.

Creek County

M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. T.D. 2,935 ft.; drlg. on iron.

Garfield County

Ohio Oil Co. No. 1 State, SW cor. sec. 13-23-3w. Viola 4,577 ft.; Dol. 4,615 ft.; first Wilcox 4,629 ft.; drlg. 4,670 ft.

Greer County

Nelf-Godfrey-Andrea No. 1 Melton, SE NW SE sec. 16-22w. Drlg. 3,220 ft.

Haskell County

Continental Oil Co. No. 1 Ferguson, SW SE NE sec. 33-8-20. Drlg. 3,020 ft.

Harmon County

Penn State Oil Co. No. 1 Cole, C W½ SW NW sec. 21-2n-26w. Drlg. 5,159 ft.

Hughes County

C. E. Beal No. 1 Eason, NE NE NW sec. 7-9-11. R.U.S.T.

Cap Rock Oil Co. No. 1 Parks, SW SW SE sec. 34-7-8. O.W.D.D.; drlg. 3,510 ft.

E. H. Moore, Inc., No. 1 Buck, NW SW SW sec. 21-8-10. Spudded.

Kay County

Higdon et al No. 1 Nieman, NE NW NE sec. 9-26-3e. T.D. 400 ft.; S.D.

Kiowa County

Argus Pet. Co. No. 1 Osborne, NW cor. NE sec. 9-7-16w. Set 5 7/16-in. 1,233 ft.; T.D. 1,275 ft.

Kiowa Oil Corp. No. 1 Finder, C SW NE sec. 4-6-20w. T.D. 130 ft.; S.D.

Latimer County

Clark Drlg. Co. et al No. 1 Wilson, C SE SE sec. 15-5-18. Drlg. 4,600 ft.

Le Flore County

Lynch et al No. 1 Tidwell, C NW SE sec. 17-3n-22. T.D. 3,505 ft.; D.&A.

Lincoln County

Exchange Drlg. Co. No. 1 Dowell, SE SE NW sec. 10-14-6. Prue 3,006-57 ft.; good S.O.; T.D. 3,065 ft.; to shoot.

Logan County

Anthony & Marshall No. 1 Fruin-Eckman, SE SE SW sec. 4-16-1e. T.D. 4,975 ft.; waiting on new cable.

Eason Oil Co. et al No. 1 Sisters, SW cor. sec. 24-17-1w. First Wilcox 5,402 ft.; drlg. 5,423 ft.

Helmerich & Payne et al No. 1 Randall, SW SW NW sec. 24-16-1w. Layton 3,572-3,640 ft.; drlg. 4,297 ft.

Noble County

Lincoln Oil Co. et al No. 1-A Neil, NE cor. sec. 15-23-2w. Wilcox 4,681 ft.; drlg. 4,749 ft.

Magnolia Pet. Co. No. 1 Forsythe, SE SE SW sec. 23-21-2w. Layton 3,870 ft.; drlg. 4,274 ft.

Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Johnson, NW NW SE sec. 4-20-2w. Rig.

Summit Drlg. Co. et al No. 1 Dolezal, SE SE SW sec. 8-22-1w. Drlg. 3,920 ft.

Okfuskee County

Oklahoma Oil Corp. No. 1 Campbell, SE SE NE sec. 8-10-9. T.D. 1,860 ft.; D.&A.

Oklahoma County

Sunray Oil Co. No. 1 Dickson, NW cor. sec. 17-11-1e. M.I.T.

Osage County

Helmerich & Payne et al No. 1 Osage, NE NE SW sec. 13-23-6. Drlg. 1,688 ft.

Midco Oil Corp. No. 1 Osage, SE SE NW sec. 22-23-6e. Drlg. 180 ft.

Pawnee County

Carter Oil Co. No. 1 Wells, C E½ SE NW sec. 30-23-5. Rig.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

Drillers, Inc., No. 1 Glassell-Means, SW NE SE sec. 9-23-15. Drlg. 5,680 ft.

Marr et al No. 5 Hunter, sec. 13-23-16. O.W.D.D.; comp.; flw. 293 B.P.D.; T.D. 6,400 ft.

R. W. Norton No. 3 L. C. Harden, SW sec. 17-23-16. Drlg. 5,600 ft.

R. W. Norton No. 1 Payne, C SE SE sec. 27-23-16. Drlg. 9,628 ft.

R. W. Norton No. 5 Starke, SW sec. 17-23-16. Drlg. 2,744 ft.

Standard Oil of La. No. 3 Armistead Comm., SE SE SE sec. 4-23-16. T.D. 2,-124 ft.; W.O.C.S.

Standard Oil Co. No. 2 L. J. Kaempfer, NE NW SW sec. 9-23-16. T.D. 2,118 ft.; W.O.C.S.

Standard Oil Co. No. 2 Sarah Kaempfer, SW SW NE sec. 9-23-16. Drlg. 275 ft.

Standard Oil Co. No. 3 Sarah Kaempfer, NW NW SE sec. 9-23-16. Drlg. 178 ft.

Surf Oil Co. No. 1 Upchurch, NE sec. 8-23-16. R.U.

United Gas No. 6 fee 574, SW NE NW sec. 16-23-16. Drlg. 5,756 ft.

United Gas No. 7 fee 574, SW NW sec. 16-23-16. Loc.

United Gas No. 8 fee 574, NW cor. sec. 16-23-16. Loc.

United Gas No. 9 Bremer Unit, SW sec. 22-23-16. 7-in. 5,980 ft.; T.D. 6,014 ft.; W.O.C.S.

United Gas No. 11 Pitts Unit, SE NW sec. 13-23-16. 10-in. cmtd. 252 ft.; W.O.C.S.

United Gas No. 1 Starke, SE SW sec. 9-23-16. Comp.; flw. 33 B.P.H.; T.D. 6,-010 ft.

United Gas No. 2 Starke, C SW SW sec. 9-23-16. Loc.

United Gas No. 5 Young, NW sec. 27-23-16. T.D. 6,790 ft.; fsg. for D.S.

N. LOUISIANA WILDCATS

Bienville Parish

DeSota O. & G. Co. No. 1 Ashley, SW SE sec. 15-16-10w. Drlg. 450 ft.

Lide & Greer No. 1 W. J. Smelley, SE NW SW sec. 18-16-4w. Drlg. 6,356 ft.

Bossier Parish

Arkansas-La No. 2-B Werner, NE cor. sec. 7-17-11. Drlg. 940 ft.

Ray P. Overiess et al No. 1 Birenhern, NW NW NE sec. 23-21-14. R.U.

Triangle Drlg. Co. No. 1-C Howell, NW sec. 26-17-12. Loc.

Premier Inv. No. 8 Weaver, sec. 14-19-11. Comp.; flw. 20 B.P.D.; T.D. 402 ft.

Premier Inv. Co. No. 40 Wyche, SE NW NW sec. 14-19-9. Drlg. 310 ft.

Producers O. & G. Co. No. 1 Hill Est., E½ NE¼ sec. 8-17-11. Drlg. 400 ft.

Producers O. & G. No. 1 R. Johnson, NE sec. 5-17-11. Drlg. 1,800 ft.

Tidwell et al No. 1 Natting, sec. 15-22-14. T.D. 2,954 ft.; S.D.

Triangle No. 2 Ross Unit, NW SW NW sec. 23-17-12. Flw. 115 bbls. in 16 hrs.; T.D. 5,180 ft.; tstg.

Triangle Drlg. Co. No. 2-A State, SW cor. sec. 23-17-12. Flw. 125 B.P.D.; T.D. 5,170 ft.; tstg.

United Gas No. 1 S. L. Herold, 660 ft. S and W, NE sec. 31-17-4. R.U.

United Gas No. 1-A Jeter Unit, SW sec. 24-17-12. T.D. 1,294 ft.

United Gas No. 3 L. Schmitt, NW sec. 14-17-12. M.I.M.

United Gas No. 2-I H. C. Skannal, SW sec. 25-17-12. 13-in. cmtd. 268 ft.; W.O.C.S.

Caddo Parish

J. G. Abney No. 1 Thigpen & Herold, NW SW sec. 15-21-15. Drlg. 890 ft.

Calatex O. & G. No. 3-A Agurs, SW. cor. sec. 6-16-6. Drlg. 1,820 ft.

Paul Cooper No. 2 Rodgers, NW SW SW sec. 11-20-15. T.D. 2,204 ft.; arg. make D.S.

G.R.C. Oil Co. No. 5 Herndon, NE SE

New MAC
PLUNGER BARREL
for 2-inch tubing

Outlasts three ordinary barrels, as Steel Plunger works in and out of Cast Iron Barrel as much as 2 feet on the up and down stroke and more if desired, thus flushing itself free of sand or gypsum.

Reversible Valve Body and Plunger make for lowest upkeep.

Furnished with 2-Cup Standing Valve and with, or without, Garbutt Rod.

Save, with the New "MAC"!

Ask for complete details and price list.

McGREGOR
WORKING BARREL COMPANY
Bradford, Pa., U.S.A.

NW sec. 22-21-15. T.D. 1,600 ft.; W.O. S.R.

W. J. Hunter et al No. 1 Stoer, NW SW NE sec. 10-15-15. Drlg. 4,980 ft.

F. L. Luckett No. 1 Connell, SW NE sec. 10-20-15. 6-in. cmtd. 2,174 ft.; T.D. 2,203 ft.; prep. to test.

Tom Pappas No. 2 Spell, SW sec. 28-21-15. 16-in. cmtd. 71 ft.

W. L. Porter No. 1 Terbune, sec. 15-21-16. T.D. 980 ft.; prep. D.D.

Prairie River Synd. No. 1 Hutchinson, SW NW sec. 15-15-12. Drlg. 7,757 ft.

Rodgers et al No. 1 Thompson, NW SW SW sec. 11-20-15. Cmtd. 2,204 ft.; W. O.C.S.

Shreveport Oil Corp. No. 2-D Munslow, SE sec. 5-20-15. T.D. 2,125 ft.; est. 1,000,000 ft. gas; tstg.

Simplex Oil No. 5-A Natalee, NE NW SE sec. 10-20-15. Cg. 2,175 ft.

Stanolind O. & G. Co. No. 121 Dillon, NE SE sec. 14-21-15. Comp.; pmp. 65 B.P.D.; T.D. 1,680 ft.

Stanolind O. & G. No. 122 Dillon, sec. 13-21-15. T.D. 1,665 ft.; 6-in. cmtd. 1,485 ft.; W.O.C.S.

Stanolind No. 1 Wheritt, SE SW sec. 23-21-15. Drk.

Claiborne Parish

Atlantic Ref. Co. et al No. 1 F. B. King, SE sec. 35-21-5. R.U.

J. B. Bond No. 1 H. E. Patton, E½ NW NW sec. 36-21-5. Drlg. 5,028 ft.

Gulf Ref. No. 1 Eva Bennett, SW sec. 31-21-4. Comp.; flw. 465 B.P.D.; T.D. 5,-349 ft.

Gulf No. 1 Henry, S½ NW NE sec. 31-21-4. Drk.

Gulf Ref. No. 2 H. E. Patton, 1,650 ft. N and W, SE cor. sec. 36-21-5. Comp.; flw. 910 B.P.D.; T.D. 5,334 ft.

Gulf Ref. No. 3 H. E. Patton, SW NE SW sec. 36-21-5. Comp.; flw. 24 B.P.H.; T.D. 5,310 ft.

Gulf Ref. No. 4 H. E. Patton, NW NE SW sec. 36-21-5. Comp.; 19 B.P.H.; T.D. 5,-321 ft.

Hollifield & McFarland No. 1 M. Patton, N½ NW SE sec. 31-21-4. Drk.

T. L. James No. 1 Patton Est., C N½ NE SE sec. 36-21-5. Comp.; flw. 500 B.P.D.; T.D. 5,321 ft.

T. L. James No. 2 Patton Est., SW NE SW sec. 36-21-5. Comp.; flw. 823 B.P.D.; T.D. 5,344 ft.

Love Pet. Co. No. 2 H. E. Patton, W½ SW SE sec. 36-21-5. Drlg. 1,560 ft.

Love Pet. Co. No. 3 H. E. Patton, NE SW SE sec. 36-21-5. Comp.; flw. 19 B.P.H.; T.D. 5,335 ft.

Lyons & Neely No. 2 H. E. Patton, W½ NW SW sec. 36-21-5. Drlg. 800 ft.

Lyons & Neely No. 1-B Maggie Patton, W½ SE SW sec. 31-21-4. R.U.

Lyons & Neely No. 2-B Maggie Patton, E½ SE SW sec. 31-21-4. R.U.

Lyons & Neely No. 2 Maggie Patton, E½ NW SW sec. 31-24-4. Drlg. 2,267 ft.

Magnolia Pet. No. 1 English, S½ SE SW sec. 31-21-4. R.U.

Magnolia Pet. No. 1 H. E. Patton, NW SE SW sec. 36-21-5. Drlg. 2,782 ft.

L. O. McMillan No. 1-B Maggie Patton, sec. 31-21-4. Drlg. 4,915 ft.

L. O. McMillan No. 1 H. E. Patton, S½ SW NW sec. 36-21-5. Comp.; flw. 32 B. P.H.; T.D. 5,253 ft.

L. O. McMillan et al No. 2 H. E. Patton, W½ SW NW sec. 36-21-5. R.U.

L. O. McMillan et al No. 2-A H. E. Patton, N½ NE SW sec. 31-21-4. Drlg. 1,500 ft.

L. O. McMillan No. 1 Roberta Vaughn, N½ NW NE sec. 36-21-5. Comp.; 300 B.P.D.; T.D. 5,313 ft.

McMillian et al No. 2 Roberta Vaughn, N½ NW NE sec. 36-21-5. Drk.

E. T. Oakes No. 1 M. S. Patton, NE NW NE sec. 1-20-5. Drk.

Ray P. Oden No. 2 H. W. Patton, NW SE SE sec. 36-21-5. 7-in. rng.; T.D. 5,352 ft.

C. R. Schuster et al No. 2 M. S. Patton, S½ NW NE sec. 1-20-5. M.I.M.

Scouts Oil Co. No. 1 R. Vaughn, E½ NE NW sec. 36-21-5. R.U.

Scouts Oil Co. No. 2 R. Vaughn, W½ NE NW sec. 36-21-5. M.I.M.

Shreveport Oil Corp. No. 1 Edwards, NE sec. 16-20-5w. Drlg. 1,560 ft.

Standard Oil of La. No. 1 Baker, 660 S&E NW sec. 27-19n-7w. Drlg. 7,180 ft.

Standard Oil No. 1 F. B. King, 660 ft. N, 330 ft. W, SE SE NE sec. 35-21-5. Drk.

J. C. Tippett No. 1 H. E. Patton, 330 ft. N and E, SW SE sec. 36-21-5. Drlg. 4,965 ft.

P. W. Woodruff No. 1-B McDonald, N½ SE NE sec. 36-21-5. Drlg. 3,756 ft.

P. W. Woodruff No. 1 T. E. Patton, S½ SE NE sec. 36-21-5. Drlg. 2,282 ft.

P. W. Woodruff No. 2 H. E. Patton, C N½ SW NE sec. 31-24-4. Comp.; flw. 400 B.P.D.; T.D. 5,299 ft.

De Soto Parish

Benedum & Trees No. 1 Clifton, NE NW sec. 33-13-12. Drlg. 5,570 ft.

Chamberlin et al No. 1 Lainer, SW NE sec. 29-11-11. Drlg. 1,530 ft.

Grogan Oil No. 1-A Ramsey, sec. 36-11-11. Drk.

Rio Rajo Oil Co. No. 7 Prudhomme, SE cor. sec. 20-12-11. Flw. 30 bbls. oil and 40 bbls. S.W. per day; T.D. 2,749 ft.; tstg.

Stillers et al No. 2 Jenkins, 330 ft. S and W, NE SE NW sec. 35-13-12. S.D. 2,503 ft.; fuel.

Franklin Parish

Jensen & Bailey No. 1 Grayson, C NE sec. 36-12-6e. 10-in. cmtd. 220 ft.

Grant Parish

Burkett et al No. 1 Morrison, 156 ft. E and W, NW SW SW sec. 10-9-1e. T.D. 50 ft.

R. W. Fair No. 1 R. L. Gray, NW cor. 180-ac. tr. Loc.

H. M. S. Corp. No. 1 McNeely, sec. 21-6n-3w. 20-in. csg. 20 ft.

Harvey Weir No. 1 Calfax Bk. & Tr. Co., NE NW sec. 15-7n-3w. 10-in. cmtd. 160 ft.; W.O.C.S.

Lincoln Parish

J. D. Carruthers No. 1 Aycock, N½ SW SW sec. 6-20-4. M.I.M.

B. O. D. C. and H. D. Easton No. 1 G. W. Dye, NE NE sec. 21-19-4w. M.I.M.

Glassell & Glassell No. 1 Gray, SE sec. 16-20-3e. Drlg. 3,130 ft.

Lyons & Neely No. 1 W. H. Patton, N¼ NW NW sec. 6-20-4. Drlg. 4,680 ft.

E. T. Oakes-H. D. Easton and Evans No. 1 R. L. Sanderson, NW SE NW sec. 36-18-1w. Drk.

Morehouse Parish

J. E. Ferrell No. 1, NE sec. 27-20-4e. Loc.

United Gas No. 1, NE sec. 36-22-4e. Drk.

Natchitoches Parish

Roy Raines No. 1 Allen, NW NE SW sec. 22-10-9w. 12-in. cmtd. 70 ft.

Ouachita Parish

Hope Prod. Co. No. 8 Cole, sec. 38-19-3e. Loc.

Hope Prod. Co. No. 9 Cole, sec. 38-19-3e. Loc.

Red River Parish

F. G. Gellz No. 1 Teekell, SW SE sec. 34-13-10. Drlg. 821 ft.

Gulf No. 27 Kennedy, SW sec. 24-13-11. 6-in. 2,490 ft.

Gulf No. 40 E. T. Robinsons, SW sec. 24-13-11. Comp.; pmp. 46 B.P.D.; T.D. 2,-553 ft.

Gulf Prod. Co. No. 41 E. T. Robinson, NW sec. 25-13-11. Drk.

Peria Oil Co. No. 1 DeLong, 330 ft. S and E, C sec. 23-12-10. 7-in. cmtd. 1,023 ft.; S.O.; T.D. 1,039 ft.

J. D. Wadley No. 1 McClelland, SE NE sec. 24-13-11. Drlg. 3,000 ft.

Sabine Parish

Odell Henson No. 11 Long Bell, SE NE NW sec. 5-8-13. S.D. 40 ft.

Kirk-Green-Way Inc. No. 1 Whitney Corp., NW NE sec. 8-9-13. Drlg. 5,335 ft.

Peria Oil Co. No. 1 Brown, SE SW NW sec. 16-9-13. Drk.

Producers O. & G. Co. No. 5 Edwards Est., SW NW SW sec. 29-9-13. Drlg. 1,460 ft.

Prod. O. & G. Co. No. 1 Lynch, SW NE SW sec 29-9-13. Pumped off; acid; T.D. 1,608 ft.

Ray Drlg. Co. No. 3 Burkett, NW SW sec. 10-9-13. 6-in. cmtd. 1,470 ft.; W.O.C.S.

A. C. Scott No. 1 Bowman-Hicks Lbr. Co., sec. 23-9-13. 5-in. cmtd. 3,063 ft.; T.D. 3,070 ft.

Willis & Dowden No. 1 Lynch, SW NE SW sec. 29-9-13. T.D. 1,608 ft.; arg. tst.

Windsor No. 1 H. Brown, NW SW NW sec. 16-9-13. Loc.

Windsor No. 1 M. Elliott, SE NE NW sec. 17-9-13. Loc.

Tensas Parish

H. M. Jones et al No. 1 Chicago Mill & Lbr. Co., NE sec. 30-12n-10e. T.D. 798 ft.; blew out after stng. 8 mo.; gauging 30,000,000 ft. gas and 10,000 bbls. wtr.; drld. out bridge and well blew out again and bridged over; T.D. 798 ft.; W.O.; T.D. 798 ft.; blew out again and bridged.

Union Parish

Interstate Gas Co. No. 68 fee, SW sec. 29-21-4e. Loc.

Interstate Gas Co. No. 90 fee, SE sec. 30-21-4e. Loc.

Webster Parish

W. H. Bass Drlg. Co. No. 1 T. Crichton, C NW NW sec. 21-20-9. Drlg. 5,860 ft.

N. V. Duncan No. 1 G. T. Baker, sec. 9-23-9. Drlg. 860 ft.

Magnolia No. 2 D. G. Cox, SW SE NE sec. 22-21-10. Drlg. 5,720 ft.

Magnolia Pet. No. 6 Ira Cox, NE NE SE sec. 23-21-10. Drlg. 845 ft.

Magnolia Pet. Co. No. 2 A. J. McCook, SW sec. 22-21-10. Drk.

Ohio Oil Co. No. 1 S. P. D. Coyle, NW SE SW sec. 23-21-10. Drlg. 7,486 ft.

Ohio Oil Co. No 2 R. M. Coyle, SE sec. 22-21-10. Drlg. 7,250 ft.

Ohio No. 1 S. P. D. Coyle and W. Cox, SW SW SE sec. 23-21-10. Drk.

Ohio Oil No. 1 T. Crichton, Acct. No. 2, SE NE sec. 21-21-10. Drk.

Ohio Oil No. 1 L. M. Gardner, NE sec. 22-21-10. 9-in. cmtd. 5,628 ft.; T.D. 5,-645 ft.; W.O.C.S.

Ohio Oil Co. No. 2 A. H. Gray Acct. No. 2, NW sec. 26-21-10. Cg. 8,185 ft.

Ohio Oil Co. No. 2 A. J. Hodges, NE NW SW sec. 23-21-10. Drlg. 8,011 ft.

Ohio No. 7-B R. L. Holloway, 586 ft. N, 756 ft. E line, sec. 23-21-10. Drk.

L. R. Skidmore No. 1 Barnett, NE NW SW sec. 29-17-9. T.D. 3,785 ft.; S.D.

Standard Oil of La. No. 1 E. L. Stewart, SE SE SE sec. 32-21-10. Drlg. 4,740 ft.

Woodley Pet. Co. No. 4-B Gray, NE NE sec. 27-21-10. Drlg. 8,017 ft.

SOUTH LOUISIANA FIELDS

Ansela Butte—St. Martin Parish

Y. D. Spell No. 3 Begnaud, sec. 117-9s-5e. Cg. sd. 1,385 ft.; no report.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 3 Wilbert sec. 74-9s-10e. Drk.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 14 State, sec. 20-22s-18e. Drlg. sdy. sh. 4,256 ft.

Bayou Cocotrix—Terrebonne Parish

Shell Pet. Corp. No. 1 Pelican, sec. 35-17s-15e. Cg. sd. showing oil 8,678 ft.

Black Bayou—Cameron Parish

Shell Pet. Corp. No. 37 Watkins, sec. 8-12s-12w. T.D. 4,648 ft.; salt; P.B. 3,588 ft.; W.O.C.

Caillou Island—Terrebonne Parish

Texas Co. No. 1 Caillou Island, sec. 18-23s-20e. Loc.

Texas Co. No. 1 L.L.&E., sec. 18-23s-20e. Drk.

Texas Co. No. 3 State, sec. 19-23s-20e. T.D. 6,694 ft.; 7⅝-in. csg. 6,648 ft.; perf. csg. 6,620-40 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 3 Laws Realty Co., sec. 25-12s-9e. Drlg. sh. and L. 8,683 ft.

Pan American Ref. Co. No. 4 Laws Realty Co., sec. 30-13s-10e. Drk.

Pan American Prod. Co. No. 1 South Coast Corp., sec. 30-13s-10e. T.D. 7,923 ft.; rec. 1,000 ft. of P.L.O. on D.S.T. 7,906-23 ft.; 7-in. csg. 7,906 ft.; I.P. 311 bbls. in 12 hrs.; ¼-in. ck.

Pan American Prod. Co. No. 1 Veeder, sec. 30-13s-10e. Drk.

Choctaw—Iberville Parish

Standard Oil Co. No. 9 Myrtle Grove, sec. 53-9s-11e. T.D. 3,455 ft.; P.B. 3,160 ft.; to sdtrk.; T.D. 5,570 ft.; rmg.

Cameron Meadows—Cameron Parish

Burton-Sutton Oil Co. No. 16 Sch. Ld., sec. 16-14s-13w. Drk.

Burton Sutton Oil Co. No. 18 School Ld., sec. 16-14-13w. T.D. 3,650 ft.; 7-in. csg. 3,632 ft.; W.O.C.

Magnolia Pet. Co. No. 19 Cameron Meadows, sec. 16-14s-13w. Drlg. sh. 5,834 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 1 V. E. Landry, sec. 34-10s-2e. T.D. 5,803 ft.; rmg.

Kira Oil Co. No. 1 Duplessis, sec. 69-10s-2w. R.U.

Dog Lake—Terrebonne Parish

Texas Co. No. 5 State, sec. 5-22s-16e. 10¾-in. csg. 1,505 ft.; drlg. sh. 6,874 ft.

Fausse Point—Iberia Parish

Texas Co. No. 3 State, sec. 35-11s-8e. Drk.

Garden Island—Plaquemines Parish

Texas Co. No. 21 State, sec. 37-23s-33e. Drlg. sdy. sh. 4,583 ft.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 3 Airhart, sec. 14-9s-8w. Drk.

Union Sulphur Co. No. 14 Barbe, sec. 1-9s-8w. T.D. 6,738 ft.; 7-in. csg. 6,723 ft.; swabbing.

Union Sulphur Co. No. 15 Barbe, sec. 1-9s-8w. Drlg. sh. and L. 6,054 ft.

Union Sulphur Co. No. 7 Castle, sec. 14-9s-8w. Drlg. sh. 6,635 ft.

Union Sulphur Co. No. 5 Kaufman, sec. 13-7s-8w. Drk.

Union Sulphur Co. No. 6 Mayo-Reeves, sec. 12-9s-8w. Drlg. sd. and sh. 1,258 ft.

Hackberry—Cameron Parish

Burton-Sutton Oil Co. No. 1-A Duhon, sec. 22-12s-10w. T.D. 4,879 ft.; rmg.

W. T. Burton No. 1 Kennedy, sec. 22-12s-10w. T.D. 4,833 ft.; 7-in. csg. 4,782 ft. I.P. 43 B.P.H.; ⅞-in. ck.

W. T. Burton No. 2 R. Vincent, sec. 22-12s-10w. R.U.

W. T. Burton No. 1 J. J. Roboria, sec. 11-9s-2w. R.U.

Emanon Oil Co. No. 1 Porter Ellender, sec. 21-12s-10w. R.U.

Stanolind O. & G. Co. No. 1-B Duhon, sec. 27-12s-10w. R.U.

Stanolind O. & G. Co. No. 4 Duhon, sec. 22-12s-10w. Drk.

Stanolind O. & G. Co. No. 25-B Gulf Land fee, sec. 15-12s-10w. 20-in. csg. 158 ft.; drlg. sdy. sh. 6,328 ft.

Stanolind O. & G. Co. No. 1 Little, sec. 28-12s-10w. Run 109 ft. 16-in. csg.; drlg. sh. 4,139 ft.

Stanolind O. & G. Co. No. 19 School Ld., sec. 16-12s-10w. R.U.

Stanolind O. & G. Co. No. 53 State, sec. 16-12s-10w. Drk.

Texas Co. No. 21 State, sec. 12-12s-9w. 10¾-in. csg. 2,126 ft.; T.D. 7,630 ft.; 7-in. csg. 7,600 ft.

Iowa—Jefferson Davis Parish

Shell Pet. Corp. No. 23 Heyd, sec. 13-9s-7w. 5-in. csg. 4,390 ft.; T.D. 4,400 ft.; I.P. 522 B.P.D.; ¼-in. ck.

Shell Pet. Corp. No. 24 Heyd, sec. 13-9s-7w. R.U.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Banta, sec. 40-13s-9e. 9⅝-in. csg. 7,030 ft.; drlg. sh. 7,684 ft.

Herton Oil Co. No. 8 Banta, sec. 40-13s-9e. T.D. 6,650 ft.; 7-in. csg. 6,637 ft.

Herton Oil Co. No. 6 Carter, sec. 38-13s-9e. Oil sd. 7,031-41 ft.; 7-in. csg. 7,006 ft.; tstg.

Herton Oil Co. No. 7 Carter, sec. 38-13s-9e. Drk.

Jennings—Acadia Parish

W. T. Burton No. 1 Robira, sec. 41-9s-2w. T.D. 6,630 ft.; rmg.

Alfred Glassell No. 1 R. McFariain, sec. 41-9s-2w. Drlg. sh. 3,850 ft.

Alfred Glassell No. 1 Troushelle, sec. 42-9s-2w. Drlg. sh. 5,149 ft.

Lake City Oil Co. No. 2 Jennings Synd., sec. 46-9s-2w. T.D. 4,248 ft.; 7-in. csg. 4,248 ft.; perf. csg.; S.D.

Stanolind O. & G. Co. No. 18 Houssiere-Latrielle, sec. 47-9s-2w. 8⅝-in. csg. 5,-358 ft.; T.D. 7,072 ft.; 6⅝-in. csg. 7,-005 ft.; making 2½ bbls. of distillate per day; killed to W.O.

Superior Oil Prod. Co. No. 2 Iowa-Jennings, sec. 41. Drk.

Superior Oil Prod. Co. No. 2 Jennings-Heywood, sec. 41-9s-2w. 11¾-in. csg. 1,-465 ft.; T.D. 6,496 ft.; 7-in. csg. 6,293 ft. I.P. 530 B.P.D.; 15/64-in. ck.

Superior Oil Prod. Co. No. 3 Jennings, sec. 42-9s-2w. Drlg. sd. and sh. 6,373 ft.

Superior Oil Prod. Co. No. 3 Wm. Lecklet. Drlg. sdy. sh. 5,900 ft.

Superior Oil Prod. Co. No. 4 Lecklet, sec. 42-9s-2w. Drlg. sd. 4,541 ft.

Superior Oil Co. No. 5 W. M. Lecklet, sec. 42-9s-2w. Drk.

Lafitte—Jefferson Parish

Texas Co. No. 6 Lafitte, sec. 20-17s-24e. T.D. 10,386 ft.; 7⅝-in. csg. 10,204 ft.; perf. csg. 9,998-10,018 ft.; I.P. 1,285 B. P.D.; ⅜-in. ck.

Texas Co. No. 2 Milling, sec. 20-17s-24e. Dredging canal.

Texas Co. No. 7 Rigolet, sec. 29-17s-24e. Drlg. L. 9,273 ft.

Texas Co. No. 1 State-Bayou Norman, sec. 28-17s-24e. Drlg. sdy. sh. and L. 9,033 ft.

Lake Barre—Terrebonne Parish

Texas Co. No. 37 Lake Barre-State. T.D. 10,959 ft.; D.S. stuck; shot at 8,113 ft.; P.B. and sdtrkd.; T.D. 3,763 ft.; run 7⅝-in. csg. 3,741 ft.; I.P. 546 B.P.D.; ¼-in. ck.

Lake Pelto—Terrebonne Parish

Texas Co. No. 15 State, sec. 17-23s-18e. T.D. 7,136 ft.; rmg.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 7 Lafourche, sec. 12-18s-25e. R.U.

Leesville—Lafourche Parish

Gulf Ref. Co. No. 24 Allen Land Co., sec. 26-21s-22e. Drk.

Gulf Oil Corp. No. 1-A City of New Orleans, sec. 35-21s-22e. Core cap rock 6,-339 ft.

Gulf Ref. Co. No. 64 Leesville, sec. 26-21s-22e. Drlg. sdy. L. 2,952 ft.

Texas Co. No. 59 L.L.&E., sec. 27-21s-27e. T.D. 4,839 ft.; 7⅝-in. csg. 4,808 ft.; I.P. 1,334 B.P.D.; ⅜-in. ck.

Lockport—Cameron Parish

Magnolia Pet. Co. No. 6 Freeberg, sec. 9-10s-9w. T.D. 6,139 ft.; rmg.

New Iberia—Iberia Parish

Wm. Hellis No. 8 Bernard, sec. 54-12s-7e. Drlg. sh. and L. 4,720 ft.

Wm. Hellis No. 4 Bullock & Burke, sec. 25-12s-7e. T.D. 4,505 ft.; P.B. and sdtrk.; T.D. 4,401 ft.; P.B. and sdtrkd.; T.D. 4,548 ft.; 7-in. csg. 3,722 ft.; swbg. 150 bbls. daily.

Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. S.D. 4,962 ft.; salt.

Texas Co. No. 2 Duhe, sec. 26-12s-7e. Drlg. T.D. 4,454 ft.; 7-in. csg. 4,371 ft.; I.P. 1,189 B.P.D.; ⅜-in. ck.

Texas Co. No. 3 Bryant, sec. 25-12s-7e. R.U.

Texas Co. No. 6-B Hanzen, sec. 54-12s-7e. R.U.

Port Barre—St. Landry Parish

Pan American Prod. Co. No. 2 Watkins, sec. 4-6s-5e. Cg. sh. 4,989 ft.

Roanoke—Jefferson Davis Parish

Humble O. & R. Co. No. 8-B Devilbiss, sec. 11-9s-4w. T.D. 8,840 ft.; I.P. 38 B. P.H.; ¼-in. ck.

Humble O. & R. Co. No. 6 Kratzer, sec. 11-9s-4w. Drlg. 273 ft.

Sorrento—Ascension Parish

Sorrento Oil Co. No. 1 Bernard, sec. 9-19s-14e. T.D. 6,708 ft.; P.B. 5,373 ft.; drlg. 5,459 ft.

South Jennings—Jeff Davis Parish

Stanolind-Amerada Pet. Corp. No. 2 Calcasieu Natl. Bank, sec. 10-10s-3w. 13⅜-in. csg. 1,987 ft.; drlg. sh. 3,381 ft.

Starks—Calcasieu Parish

J. R. Turnbull No. 1 Industrial Lbr. Co., sec. 20-9s-12w. S.D. 6,433 ft.

LEGAL

In the District Court of Sedgwick County, Kansas. U. L. McCracken, Plaintiff, vs. The Cusco Oil and Refining Company, a corporation, Defendant. No. 97215. Div. No. 2. Notice of Receiver's Sale. By virtue of an Order of Sale issued out of the District Court of Sedgwick County, Kansas, in the above entitled action, I will, on the 25th day of May, at 10 A.M., at the west front door of the Court House in the City of Wichita, Sedgwick County, Kansas, offer for sale at public auction and sell to the highest bidder, for cash in hand, all of the property and assets of every kind or character belonging to the Cusco Oil and Refining Company, a corporation, consisting of real estate located at Chase, Rice County, Kansas, and refinery plant, formerly operated by the Cusco Oil and Refining Company at Chase, Kansas, which plant includes switch track and loading rack, office building and sheds, cooling coils, agitator and ponds, pumps, tanks, stills and towers, underground pipe and above, boiler house, office furniture and fixtures, laboratory equipment and supplies, tools, chemicals, 380 barrels of kerosene, 600 barrels fuel oil, 1 1935 Plymouth Coach, and other miscellaneous items of equipment on, in and about said refinery, also all other assets of said corporation. Dated at Wichita, Kansas, May 13, 1937. Harry H. Becker, Receiver, 209 Brown Building, Wichita, Kansas.

St. Martinsville—St. Martin Parish

Tide Water Oil Co. No. 1-C Smedes, sec. 57-11s-6e. Drlg. sh. 6,744 ft.
Tide Water Oil Co. No. 3 Smedes, sec. 57-11s-6e. T.D. 5,563 ft.; run 7-in. csg.; I.P. 406 B.P.D.; ¼-in. ck.

Tepetate—Acadia Parish

Continental Oil Co. No. 4 P. W. Miller, sec. 28-7s-2w. T.D. 8,316 ft.; run csg.
Continental Oil Co. No. 1 Vincent and Welch, sec. 30-7s-2w. Drlg. sh. 1,518 ft.
Continental Oil Co. No. 8-A Welch, sec. 28-7s-2w. Drlg. L. 7,287 ft.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 3 Harang, sec. 8-17s-20e. T.D. 7,718 ft.; D.P. stuck. P.B. 5,154 ft.; cg. 6,193 ft.
Pan American Prod. Co. No. 4 Harang, sec. 8-17s-20e. T.D. 7,190 ft.; 7-in. csg 7,120 ft.; made squeeze job 5,395-5,450 ft.; pulling screen.
Pan American Prod. Co. No. 5 Harang, sec. 8-17s-20e. 16-in. csg. 235 ft.; drlg. sh. 6,501 ft.

Vinton—Calcasieu Parish

Woodley Pet. Co. No. 1 Gray, sec. 32-10s-12e. T.D. 3,734 ft.; P.B.

White Castle—Calcasieu Parish

Shell Pet. Corp. No. 4 Shingle, sec. 12-11s-12e. T.D. 8,803 ft.; P.B. 8,717 ft.; milling out of csg. at 8,027 ft.; drlg. sh. and L. 8,068 ft.

S. LOUISIANA WILDCATS

Acadia Parish

H. E. Dalton No. 1 Setting, sec. 17-7s-1w. T.D. 5,426 ft.; left 900 ft. of D.S. in hole.
Humble O. & R. Co. No. 1 Floyd Williams, sec. 34-8s-1e. Cg. sh. 6,050 ft.

Allen Parish

Humble O. & R. Co. No. 3 Bel, located in cratered hole, sec. 26-6s-7w. 10¾-in. csg. 165 ft.; T.D. 2,870 ft.; 7-in. csg. 2,766 ft.; shot well; failed to stop flwg. S.W.; S.D.

Avoyelles Parish

Coastal Minerals No. 1 Purdy-Hess, sec. 25-2n-3e. Drk.; S.D.; high wtr.
George Connover No. 1 Purdy-Hess, sec. 36-2n-3e. Drk.
Frost Oil Co. No. 1 Hines Lumber Co., sec. 3-3n-4e. Drk.

Calcasieu Parish

D. D. Oil Co. No. 1 Lutcher Moore, sec. 11-8s-13w. T.D. 8,447 ft.; D.S. stuck; fsg. hole cleaned to 6,500 ft.

Cameron Parish

Humble O. & R. Co. No. 1 Hanzen, sec. 5-12s-6w. R.U.
Pure Oil Co. No. 2 State, sec. 14-13s-3w. Moving in.
Southern Sulphur Co. No. 2 State, sec. 29-15s-10w. S.D. 2,611 ft.
Union Sulphur Co. No. 1 J. O. Hebert, sec. 18-12s-8w. T.D. 8,326 ft.; 7-in. csg. 8,326 ft.

Cameron Parish—Gulf of Mexico

Superior Oil Prod. Co. et al No. 1 State-Gulf of Mexico, 3,800 ft. W, 6,200 ft. S of SE cor. of irregular sec. 4-15s-8w. Loc.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Elliott, sec. 3-9s-2e. R.U.
Cavalier Oil Co. No. 1 E. B. Young, sec. 52-4e-1w. Abd. 5,001 ft.

East Feliciana—Wild

Koch et al No. 1 Andrews, sec. 69-2s-3e. Spudded.

Evangeline Parish

Belle Chenney Springs Oil Co. No. 1 Belle Springs Land Dev. Co., sec. 10-2s-1w. Drld. to 2,215 ft.; S.D.

Continental Oil Co. No. 1 Pardee Lbr. Co., sec. 18-4s-1w. Abd. 8,875 ft.

Iberia Parish

E. J. Beaullied No. 1 Ozenine, sec. 9-13s-7e. Drk.
Jefferson Lake Oil Co. No. 414 State Lake Pigneur, Twp. 12s-5e. Top salt 990 ft.; set 10¾-in. csg. 5,095 ft.; top oil sd. 6,915 ft.; 7-in. csg. 6,930 ft.; cd. salt 7,059-60 ft.; P.B. 5,500 ft.; milling on csg. 5,469 ft.
Texas Co. No. 2-B Vermilion Bay, Twp. 16s-5e. Move in.

Jefferson Parish

Louisiana Crusader Oil Corp. No. 1 Langley, sec. 36-7s-5w. T.D. 7,450 ft.; P.B. to sdtrk. at 6,868 ft.; S.D. 7,314 ft.
Triangle Oil Co. No. 1 Conroe, sec. 125-12s-11e. T.D. 2,461 ft.; rebldg. drk.

Jefferson Davis Parish

Stanolind O. & G. Co. No. 2-B Calcasieu Natl. Bank, sec. 28-7s-3w. 13⅜-in. csg. 1,950 ft.; fsg. 4,201 ft.

Lafourche Parish

Gulf Oil Corp. No. 3 State, sec. 36-23s-21e. R.U.
Fohs Oil Co. No. 1 State Lake, sec. 65-17s-19e. T.D. 8,387 ft.; 9⅝-in. csg. 8,384 ft.
Wm. Heilis No. 1 City of New Orleans, sec. 19-23s-23e. T.D. 7,607 ft.; 7-in. csg. on bttm.; S.D.

Livingston Parish

Coastline Oil Co. No. 1 Addison Trust Co., sec. 7-7s-3e. Drk.

Plaquemines Parish

Gulf Oil Corp. No. 1 Bay-Adams sec. 32-52s-19. Reaming 4,374 ft.
Tide Water Oil Co. No. 3 Manhattan Fruit Co., sec. 26-21s-30e. Dredging canal.

Rapides Parish

C. L. Decker No. 1 Lee Lbr. Co., sec. 21-5n-3e. Drk.
R. D. Webb No. 1 A. M. Brasher, sec. 22-4n-2w. Fsg. 5,236 ft.

St. Bernard Parish

Gulf Oil Corp. No. 1 Lake Lery, sec. 28-14s-14e. Drlg. sh. and sd. 6,150 ft.
Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. 13⅜-in. csg. 303 ft.; S.D. 3,170 ft.

St. Charles Parish

Amerada Pet. Corp. and La. Ld. & Expl. Co. No. 1 State, sec. 13-15s-20e. Drlg. sh. and sd. 4,435 ft.

St. Landry Parish

Gulf Oil Corp. No. 1 Haas & Hirsch, sec. 12-6s-7e. Drk.
Shell Pet. Corp. No. 1 Boagni, sec. 48-8s-4e. 10¾-in. csg. 2,521 ft.; cg. sandstone 8,291 ft.

St. Martin Parish

Geo. E. Lilly et al No. 1 Martin, sec. 32-9s-7e. T.D. 996 ft.; R.U.
Texas Co. No. 9 St. Martin, sec. 21-8s-7e. 18⅝-in. csg. 106 ft.; top salt 8,848 ft.; T.D. 8,858 ft.; tstd. S.W. 7,945-70 ft.; S.D.
Texas Co. No. 3 State, sec. 14-10s-9e. cmtd. on bttm.; drlg. sh. 12,173 ft.

St. Mary Parish

Texas Co. No. 1 Horse Shoe Bayou, sec. 40-17s-9e. T.D. 10,975 ft.; 7⅝-in. csg. 18-in. csg. 101 ft.; drlg.; drlg. sh. 8,045 ft.
Texas Co. No. 1 State-Bateman Lake, sec. 21-16s-12e. T.D. 8,953 ft.; reset barge.

Terrebonne Parish

Humble O. & R. Co. No. 1 H. J. Ellender, sec. 23-19s-19e. 9⅝-in. csg. 8,735 ft.; T.D. 12,165 ft.; 7-in. csg. 12,101 ft.; perf. csg. 12,013-18 ft.; 250 lbs. pressure; rng. perf. csg. 11,620-30 ft.; 11 shots flwd. est. 50 bbls. of fluid per hr.; ¼-in. ck.; 35% emulsion and S.W.; C.P. 4,600 lbs.; T.P. 3,100 lbs.; killed well to W.O.

ARKANSAS

Clark County

Carter & Burdick No. 1 Ozan Lbr. Co., NE NE SW sec. 25-9-19. Drlg. 960 ft.

Dallas County

J. C. Kelly No. 1 Serrells, SE SE SW sec. 35-10-16. M.I.M.

Hempstead County

H. D. Easton et al No. 1 R. M. Lagrove, C NE NE sec. 5-12-26w. M.I.M.
E. H. Moore, Inc. No. 1 fee, NE cor. E½ SE¼ sec. 21-14-25. Drlg. 500 ft.
Shephard & Todd et al No. 1 Smith, NW SW SE sec. 11-11-25. S.D. 1,736 ft.; high water.

Little River County

Joe Strahan No. 1 Dierks, SW SE sec. 21-12-28. P.B. to 1,650 ft. and will whipstock.

Lonoke County

Frank F. Silvers No. 2 Chambers, SW NE NW sec. 17-2n-7w. Drlg. 700 ft.

Miller County

E. H. Moore No. 2 Dale, 660 ft. N and W, C sec. 24-15-26. Cg. 4,416 ft.
E. H. Moore No. 3 Dale, 660 ft. W of No. 7, sec. 24-15-26. Cg. 4,270 ft.
Nivla Oil Corp. No. 1 M.&P. Bank, NE SE SE sec. 18-15-26. T.D. 4,500 ft.; D.&A.

Miller County—Rodessa

McClanahan et al No. 1 W. L. Capps, sec. 11-20-28. Drlg. 4,090 ft.

Nevada County

Benedum & Trees No. 1 Grove, sec. 10-14-20. O.W.D.D.; cg. 4,020 ft.
Berry Asphalt Co. No. 2 J. Haynie, NE SE SW sec. 6-14-20. T.D. 1,239 ft.; cg. oil sd.; W.O.S.R.
Berry Asphalt Co. No. 3 W. Haynie, SE NE SW sec. 6-14-20. T.D. 1,166 ft.; W. O.S.R.
C. B. & F. Pet. Co. No. 2 W. Haynie, C NW SW NE sec. 6-14-20. Comp.; 100 B.P.D.; T.D. 1,197 ft.
Hall & Briscoe No. 2 Ritchie, NE NW SE sec. 10-14-20. T.D. 1,258 ft.; W.O.S.R.
Wm. S. King No. 1, sec. 6-13-22. T.D. 3,120 ft.; S.D.
A. M. Lacy No. 1 H. C. Bennett, SW SE sec. 24-14s-22w. Drk.
Walter Lowd No. 1 T. S. Grayson, SW SW SE sec. 12-14-20. T.D. 2,385 ft.; S.D.; W.O.
Shepard, Traylor & Jones No. 1 Purifey, NE NE sec. 17-11-20. Cg. 459 ft.

Ouachita County

Copenhaver Oil Corp. No. 1 J. E. Evans, C sec. 20-11-19. Drk.
H. H. Taylor No. 1 Joe McCree, NW SW NW sec. 21-13-19. Drlg. 1,306 ft.

Pulaski County

A. L. Kilselman No. 2 Kilselman, Jr., SE SE SW sec. 2-1s-13e. S.D. 844 ft.

Union County

Alice-Sydney Oil Co. No. 1 Morgan, NW NE SE sec. 18-18-17. Drlg. 1,803 ft.
Bruce Hunt No. 1 Robbins, 330 ft. N and E, SW SW SE sec. 12-19s-16. S.D. 50 ft.; curing titles.
Lion Oil No. 2-B Edna Morgan, SW NW SE sec. 18-18-17. Cg. 3,750 ft.
McCreslenn Oil Co. No. 5 L. Atkins, SW SW NE sec. 3-18-13. T.D. 3,667 ft.; D.&A.
Marine Oil Co. No. 1 Marcus Justiss, NW¼ sec. 18-18-17. Drlg. 4,970 ft.
Marine Oil Co. No. 6-E W. B. Thompson, SW NE NE sec. 10-18-13. T.D. 3,585 ft.; W.O.S.R.
Penn-Ark. Corp No. 1 W. N. Raulston, 330 ft. S and E, NW NW SE sec. 12-17-14. Comp.; pump 15 B.P.D.; T.D. 2,983 ft.
W. D. Wingfield et al No. 1 So. Kraft Corp., SW NE sec. 18-16-14. Drlg. 1,170 ft.

TEXAS

Week Ending May 15

GULF COAST FIELDS

Raccoon Bend—Austin County

Humble O. & R. Co. No. 12-X Austin College, Wm. Harvey Sur. T.D. 1,166 ft.; W.O.C.
Humble O. & R. Co. No. 13-B Hardy, J. E. Groce Sur. Abd. 4,282 ft.
Humble O. & R. Co. No. 22 X. Thompson, W. C. White Sur. T.D. 4,270 ft.; abd.

Hastings—Brazoria County

Goldson and Humble O. & R. Co. No. 3 Roos, Sarah McKissick Sur. Drlg. L. 4,410 ft.
W. L. Goldston et al No. 2 Thomas-Ross, S. McKissick Sur. Drlg. sh. 5,037 ft.
Humble O. & R. Co. No. 4-B Brown, Perry & Austin Sur. Drlg. sh. 3,581 ft.
Humble O. & R. Co. No. 1 C. F. Crook, B.B.B.&C. Sur. T.D. 6,080 ft.; 5½-in. csg. 6,015 ft.; I.P. 668 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 1 Hawley, B.B. B.&C. Sur. Drlg. sh. 3,847 ft.
Humble O. & R. Co. No. 2 L. C. King, H. T.&B. Sur. No. 29. T.D. 6,080 ft.; 5½-in. csg. 6,015 ft.; I.P. 606 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 2 C. M. Moody, B.B.B.&C. Sur. T.D. 6,080 ft.; 5½-in. csg. 5,993 ft.; I.P. 596 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 1 Cecil O'Connor, H.T.&B. Sur. No. 29. Drlg. sh. 3,804 ft.
Navarro Oil Co. No. 1-A W. F. Beers, Perry & Austin Sur. T.D. 1,620 ft.; W. O.C.
Navarro Oil Co. No. 2-A W. F. Beers, Perry & Austin Sur. Drk.
Navarro Oil Co. No. 1-B W. F. Beers, Perry and Austin Sur. T.D. 6,048 ft.; 7-in. csg. 5,985 ft.; I.P. 645 B.P.D.; ¼-in. ck.
Navarro Oil Co. No. 2-B W. F. Beers, Perry & Austin Sur. R.U.
Stanolind O. & G. Co. No. 4-B Brown, Perry & Austin Sur. Drlg. sh. 3,140 ft.
Stanolind O. & G. Co. No. 4 Floyd Brown, H.T.&B. Sur. No. 29. 10¾-in. csg. 1,662 ft.; drlg. sh. 5,220 ft.
Stanolind O. & G. Co. No. 1 J. F. Butts, H.&T.B. Sur. Drlg. L. 4,034 ft.
Stanolind O. & G. Co. No. 1 Mary Condon, H.T.&B. Sur. No. 29. 16-in. csg. 90 ft.; drlg. sh. 2,576 ft.
Stanolind O. & G. Co. No. 2 J. M. Elliott, Wm. Henry Sur. Drlg. L. 3,615 ft.
Stanolind O. & G. Co. No. 11-B H. H. Ford, H.T.&B. Sur. No. 29. Cg. sd. 5,939 ft.
Stanolind O. & G. Co. No. 4 Law, H.T.&B. Sur. No. 36. Drk.
Stanolind O. & G. Co. No. 2 A. C. McKibben, H.T.&B. Sur. No. 29. Cg. sh. 5,910 ft.
Stanolind O. & G. Co. No. 1 Massey Condon, Lot 20, H.T.&B. Sur. No. 29. T.D. 6,080 ft.; 7-in. csg. 5,915 ft.; I.P. 27 B. P.D.; ¼-in. ck.
Stanolind O. & G. Co. No. 4 Steve Paul, A.C.H.&B. Sur. No. 2. T.D. 5,918 ft.; 7-in. csg. 5,681 ft.; I.P. 592 B.P.D.; ¼-in. ck.
Stanolind O. & G. Co. No. 5 Steve Paul, A.C.H.&B. Sur. Drlg. sh. 4,148 ft.
Stanolind O. & G. Co. No. 7 Steve Paul, A.C.H.&B. Sur. No. 2. R.U.
Stanolind O. & G. Co. No. 4 S. A. Pennock, H.T.&B. Sur. No. 36. T.D. 1,680 ft.; W.O.C.
Stanolind O. & G. Co. No. 5 J. W. Surface, A.C.H.&B. Sur. R.U.

Lockridge—Brazoria County

Gulf Oil Corp. No. 2 Gibson, J. W. Hall Sur. Drlg. sh. 2,931 ft.
Gulf Oil Corp. No. 2 Fred Reiss, J. W. Hall Sur. R.U.
Gulf Oil Corp. No. 1-A G. L. Wood et al, Thomas Alsberry Sur. No. 4, Abst. No. 2. 13⅜-in. csg. 1,431 ft.; T.D. 6,386 ft.; 9⅝-in. csg. 6,374 ft.; pulling screen and lnr.
Gulf Oil Corp. No. 3 Wilkes Smith, J. W. Hall Sur. T.D. 6,368 ft.; 7-in. csg. 6,366 ft.; I.P. 701 B.P.D.; ¼-in. ck.
Gulf Oil Corp. No. 4-A Wilkes and Smith, J. W. Hall Sur. R.U.
Shell Pet. Corp. No. 3 Ramsey State Farm, J. W. Hall Sur. No. 11. 10¾-in. csg. 1,390 ft.; drlg. sh. 6,585 ft.

Manvel—Brazoria County

Allhands and Davis No. 1 Lambert, E. Little Sur. Drlg. sh. 2,737 ft.
Burton Drlg. Co. No. 1 Arnold, E. Little Sur. Drlg. sh. 1,400 ft.
Burton Drlg. Co. No. 2 Baldwin, E. Little Sur. T.D. 4,064 ft.; I.P. 330 B.P.D.; ¼-in. ck.
E. A. Stone No. 1 Nichols, E. Little Sur. Drk.
Texas Co. No. 16-A W. T. Belcher, H. N. Little Sur. T.D. 4,190 ft.; P.B. 4,066 ft.
Texas Co. No. 25 Houston Oil Field Assn., A.C.H.&B. Sur. No. 91. Drlg. sh. and L. 4,921 ft.
Texas Co. No. 4 Lemmer, S. Spraggins Sur. T.D. 4,120 ft.; 7-in. csg. 4,094 ft.; I.P. 334 B.P.D.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 1-A Bernard Land & Dev. Co. O.W.D.D.; drlg. sdy. sh. 9,440 ft.
Harrison and Abercrombie No. 4 Bernard River Ld. and Development Co., Charles Breen Sur. 13⅜-in. csg. 1,405 ft.; 9⅝-in. csg. 7,005 ft.; drlg. sd. and sh. 9,434 ft.

Sandy Point—Brazoria County

Bunte O. & G. Co. No. 1 A. A. Sharp, Chester S. Gorbot Sur. Drlg. sh. 3,515 ft.
Bunte O. & G. Co.-Florence Investment Co. No. 1 Fite. Cg. sh. 6,507 ft.
J. F. Driscoll No. 1 J. W. Fullet, Lavaca Navigation Sur. No. 3. 10¾-in. csg. 1,000 ft.; W.O.C.

Heyser—Calhoun—Victoria County

George Echols No. 4 Bennett, J. Galban Sur. T.D. 5,491 ft.; 7-in. csg. set on bottom; comp. for gas well.
Humble O. & R. Co. and Plymouth Oil Co. No. 12-A P. H. Welder, A. Sisneros Sur. Drlg. sh. 2,212 ft.
Humble O. & R. Co. and Plymouth Oil Co. No. 13-A P. H. Welder, A. Sisneros Sur. Drk.
Humble Oil and Plymouth Oil Co. No. 14-A P. H. Welder, J. M. Rios Sur. Drlg. sh. 3,421 ft.
Humble O. & R. Co.-Plymouth Oil Co. No. 13-B P. H. Welder, A. Sisneros Sur. T.D. 5,586 ft.; I.P. 14 B.P.H.; ⅛-in. ck.
Portilla Drlg. Co. No. 7 P. H. Welder, A. Sisneros Sur. T.D. 5,496 ft.; I.P. 129 B. P.D.; ⅛-in. ck.
Portilla Drlg. Co. No. 8 P. H. Welder, D. D. Palmer Sur. Drk.

Anahuac—Chambers County

Gulf Oil Corp. No. 9 Knowles, W. T. Knowles Sur., H.&T.C. Sur. No. 48. Drlg. sh. and L. 3,115 ft.
Gulf Oil Corp. No. 2 Pommer, sec. 40, H. &T.C. Sur. R.U.
Humble O. & R. Co. No. 2 H. O. Acom, H.T.&B. Sur. No. 23. Drk.
Humble O. & R. Co. No. 12 Broussard, H.&T.C. Sur. No. 59. Drk.
Humble O. & R. Co. No. 1-B E. T. Drought, H.&T.C. Sur. No. 46. T.D. 7,127 ft.; I.P. 659 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 12 Gripon, H.& T.C. Sur. No. 51. Drlg. sh. 1,047 ft.
Humble O. & R. Co. No. 8 C. Johnson, sec. 48, H.&T.C. Sur. Drlg. sh. 2,455 ft.
Humble O. & R. Co. No. 3 Lord, H.&T.C. Sur., sec. 50. Drk.
Humble O. & R. Co. No. 15 W. C. Tyrell, H.&T.C. Sur. No. 52. T.D. 7,085 ft.; I.P. 29 B.P.H.; ¼-in. ck.
Humble O. & R. Co. No. 13-B White, J. McGahey Sur. Drk.
Humble O. & R. Co. No. 14-B White, J. McGahey Sur. T.D. 7,115 ft.; P.B. 7,006 ft.; comp. for gas well.
Humble O. & R. Co. No. 7 Zappe, sec. 51, H.&T.C. Sur. T.D. 7,098 ft.; I.P. 637 B. P.D.

Cotton Lake—Chambers County

Salt Dome Oil Co. No. 2-C Lawrence, S. Barrow Sur. 10¾-in. csg. 1,104 ft.; split sur. csg.; skidded drk. for new hole.

Seabreeze—Chambers County

Sun Oil Co. No. 2 H. O. Acom, H.T.&B. Sur. No. 23. 18⅝-in. csg. 91 ft.
Sun Oil Co. No. 1-A Broussard-Hebert, T. &N.O. Sur. No. 127. 13⅜-in. csg. 1,366 ft.; T.D. 8,773 ft.; run Schlumberger.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1 Earl R. Davis, Chadrick Burney Sur. Drk.

Big Creek—Fort Bend County

Barnett Pet. Corp. No. 2 J. H. P. Davis, B. Nickson Sur. T.D. 3,080 ft.; fsg.
Gulf Oil Corp. No. 75 T. W. Davis, M. Young Sur. T.D. 3,135 ft.; to make D. S.T.

Blue Ridge—Fort Bend County

Telshaw-Reese and Echelson No. 1 Blakely, E. Drew Sur. R.U.

Boling—Fort Bend County

John Deering No. 1 J. M. Moore, Charles Bettner Sur. T.D. 5,268 ft.; P.B. and S.T.; drlg. sh. 4,050 ft.
Mack Hank Oil Co. No. 3-A J. R. Farmer, J. Scott Sur. Drlg. sh. 2,630 ft.
Mack Hank Oil Co. No. 5-C E. C. Farmer, J. Scott Sur. Drlg. sh. 1,525 ft.

Thompson—Fort Bend County

H. M. Naylor No. 11 Gehr, S. Kennedy Sur. T.D. 5,398 ft.; 7-in. csg. 5,280 ft.; R.U. to pmp.

Orchard—Fort Bend County

Gulf Oil Corp. No. 52 Moore, James Frazier Sur. Drlg. sh. 2,799 ft.
Gulf Oil Corp. No. 49 J. M. Moore, Germain Immg. No. 8, 13⅜-in. csg 2,522 ft.; T.D. 7,428 ft.; perf. csg.; tstg.; no report.

Gulf Oil Corp. No. 53 Moore, J. Frazier Sur. R.U.

High Island—Galveston County

Stanolind O. & G. Co. No. 1-B Cade, B Denman Sur. Drlg. sh. 7,114 ft.
Stanolind O. & G. Co. No. 61 Cade, N. Fitzsimmons Sur. Drlg. sd. 5,365 ft.
Stanolind O. & G. Co. No. 15-A Smith, M. Dunman Sur. T.D. 1,276 ft.; W.O.C.
Stanolind O. & G. Co. No. 62-A Cade, M. Fitzsimmons Sur. Drlg. 1,076 ft.

Dickinson—Galveston County

Atlantic O. & R. Co. No. 2 Sealy Hutchins. P. G. Merritt Sur. Drlg. sh. 3,500 ft.
Diadem Oil Corp. of Texas No. 2 W. J. Way, E. P. Epperson Sur. T.D. 8,198 ft.; 6⅝-in. csg. 8,191 ft.; perf. csg. 8,058-62 ft.; tstd. S.W.; cmtd. perf. csg.; made squeeze job; perf. csg. 8,133-44 ft.
Diadem Oil Corp. of Texas No. 1 Pauline Frederick. Loc.
Humble O. & R. Co. No. 1 Kilgore, W. K. Wilson Sur. Drk.
Humble O. & R. Co. No. 15-A Maco Stewart, W. K. Wilson Sur. Drk.
Humble O. & R. Co. No. 19-A Maco Stew-art, W. K. Wilson Sur. Drlg. sh. 5,907 ft.
Humble O. & R. Co. No. 8-B M. Stewart, W. Wilson Sur. Spudded.
Humble O. & R. Co. No. 17-A Stewart, J Sellers Sur. T.D. 9,125 ft.; I.P. 120 B. P.D.; ¼-in. ck.
Kenben Oil Co. No. 4 Maco Stewart, W. K. Wilson Sur. Drlg. sh. 7,037 ft.
W. E. McKinney et al No. 3-A Galveston-Houston Elec. R.R., W. K. Wilson Sur. T.D. 8,510 ft.; P.B. to sdtrk.
Pan American Prod. Co. No. 3 Craig, W. K. Wilson Sur. Drk.
Pure Oil Co. No. 1-B Sealy Hutchins, P. G. Merritt Sur. T.D. 8,146 ft.; 5½-in. csg. on bttm.; perf. csg.
Sinclair Prairie Oil Co. No. 1 W. Weems. W. K. Wilson Sur. Loc.
Stanolind O. & G. Co. No. 2 Dameani, W. K. Wilson Sur. Drlg. sh. 6,325 ft.
Stanolind O. & G. Co. No. 7 State. 13⅜-in. csg. 2,013 ft.; drlg. sh. 3,138 ft.
Turman Oil Co. and Maco Stewart No. 1 Stewart, W. K. Wilson Sur. Core sd. and sh. 8,857 ft.

Greens Lake—Galveston County

Sun Oil Co. No. 8 Hughes, W. C. M. Baker Sur. 7-in. csg. 3,890 ft.; drlg. sh. and L. 5,319 ft.

Batson—Hardin County

Bunte O. & G. Co. No. 1 Melhome, J. Mel-home Sur. Drlg. sh. 3,338 ft.

Silsbee—Hardin County

Republic Prod. Co.-Houston Oil Co. No. 11 Brooks, G. W. Brooks Sur. 10¾-in. csg. 1,441 ft.; T.D. 6,964 ft.; P.B. 5,883 ft.; drld. into old hole; P.B. 5,400 ft.; drlg. sh. and L. 6,232 ft.
Republic Prod. Co-Houston Oil Co. No. 14 Brooks, G. W. Brooks Sur. Drlg. sh. 1,405 ft.
Republic Prod. Co.-Houston Oil Co. No. 15 Brooks. Drlg. sh. 5,074 ft.

Bammel—Harris County

Geo. Lawrence No. 2 Zapp, J. Farwell Sur. R.U.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 D. A. Oates, C. Martinez Sur., Abst. 543; 9⅝-in. csg. 6,771 ft.; drlg. sdy. sh. 8,067 ft.; top gas sd. 8,063 ft.; T.D. 8,783 ft.; P.B. 8,088 ft.; W.O.C.

Goose Creek—Harris County

Bob Foster No. 1 Esenhour, Wm. Scott Sur. Drlg. 1,500 ft.
Sun Oil Co. No. 1 A. Smith, Wm. Scott Lower Lge. Drlg. sdy. sh. 3,223 ft.

Fairbanks—Harris County

Amerada Pet. Corp.-Stanolind O. & G. Co. No. 1 W. Jacobs, Blk. 1, sec. 2, W.C.R R. Sur. 10¾-in. csg. 1,430 ft.; T.D. 7,256 ft.; P.B. 6,835 ft.; to test.

Humble—Harris County

Texas Co. No. 273 Landslide, Robt. Dunman Sur. 10-in. csg. 706 ft.; drlg. sh. and L. 3,055 ft.

Pierce Junction—Harris County

A. & P. Production Co. No. 9 Whitehead, J. Hamilton Sur. No. 51. Cg. sd. 3,390 ft.
Gulf Oil Corp. No. 42 Taylor, J. Hamilton Sur. Drk.

South Houston—Harris County

Stanolind O. & G. Co. No. 2 Dist. No. 8. T.D. 4,775 ft.; 5¾-in. csg. 4,617 ft.
Stanolind O. & G. Co. No. 2, Dist. 9. 9⅝-in. csg. 1,407 ft.; T.D. 4,736 ft.; 5¾-in. csg. 4,627 ft.; tstg.
Stanolind O. & G. Co. No. 2, District 21. 9⅝-in. csg. 1,438 ft.; T.D. 4,825 ft.; tstg.
Stanolind O. & G. No. No. 2 District 22. 9⅝-in. csg. 1,459 ft.; T.D. 4,775 ft.; 5¾-in. csg. 4,679 ft.
Stanolind O. & G. Co. No. 2, Dist. No. 23. T.D. 4,214 ft.; W.O.C.
Stanolind O. & G. Co. No. 2 C. P. Wil-liams, H.T.&B. Sur. No. 6, Tr. 45. T.D. 4,068 ft.; I.P. 104 B.P.D.; ¼-in. ck.

Tomball—Harris County

Amerada Pet. Corp. and Stanolind O. & G. Co. No. 2 W. W. Baker, J. House Sur. Drk.
George Echols No. 1 J. W. Woods, J. Pruit Sur. Drlg. sh. 4,610 ft.
Humble O. & R. Co. No. 6 Farris, J. Mitchell Sur. Cg. 5,529 ft.
Humble O. & R. Co. No. 5 W. E. Hoffman, J. House Sur. T.D. 5,593 ft.; W.O.C.
Humble O. & R. Co. No. 1-B E. W. Handy, J. Pruitt Sur. T.D. 5,564 ft.; 5¾-in. csg. 5,559 ft.; I.P. 408 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 2 Joheke, J. K. Edwards Sur. Drlg. sh. 4,658 ft.
Kourey Drlg. Co. No. 2 Hillegeist, J. **House Sur. S.D. 5,038 ft.**
Shell Petroleum Corp. No. 2 Keys, J. Pruitt Sur. Drlg. sh. 3,057 ft.

Amelia—Jefferson County

Humble O. & R. Co. No. 1 J. H. Deer et al, Unit 51. Drlg. sh. 2,030 ft.
Humble O. & R. Co. No. 1 Dishman, Unit 32, C. Williams Sur. T.D. 6,778 ft.; I.P. 26 B.P.H.; ¼-in. ck.
Humble O. & R. Co. No. 1-A J. A. Dishman. Drlg. sh. 1,356 ft.
Humble O. & R. Co. No. 1-B Dishman. C. Williams Sur. Drk.
Humble O. & R. Co. No. 1-D Dishman, Unit 31. Drlg. sh. 1,050 ft.
Humble O. & R. Co. No. 1-F Dishman, Blk. C. R.U.
Humble O. & R. Co. No. 1-B Ephlin, Lot 18, Blk. D, C. Williams Sur. T.D. 6,384 ft.
Humble O. & R. Co. No. 2 T. H. Crook, C. Williams Sur. 9⅝-in. csg. 1,473 ft.; drlg. sh. 6,704 ft.
Humble O. & R. Co. No. 5 Guinn, C. Williams Sur. R.U.
Humble O. & R. Co. No. 7 Guinn, C. Williams Sur. Drlg. sh. 6,145 ft.
Humble O. & R. Co. No. 3 Industrial Investment Co., C. Williams Sur. T.D. 6,779 ft.; run screen.
Humble O. & R. Co. No. 3 Langham, C. Williams Sur. 9⅝-in. csg. 1,041 ft.; drlg. sh. 6,037 ft.
Humble O. & R. Co. No. 1 T. W. Lawler, C. Williams Sur. T.D. 6,780 ft.; I.P. 27 27 B.P.H.; ¼-in. ck.
Humble O. & R. Co. No. 3 R. J. Peveto, C. Williams Sur. T.D. 6,775 ft.; I.P. 27 B.P.H.; ¼-in. ck.
Humble O. & R. Co. No. 4 Phelan, C. Williams Sur. Drlg. sh. 1,056 ft.
Humble O. & R. Co. No. 1 W. M. Wohl-fert, C. Williams Sur. T.D. 6,779 ft.; tstg.
Glenn H. McCarthy No. 5 Longe, H. Wil-liams Sur. T.D. 5,412 ft.; run lnr.
Glenn H. McCarthy No. 6 Longe, H. Williams Sur. Drk.
Normandie Oil Co. No. 1 R. J. Peveto, C. Williams Sur. T.D. 6,780 ft.; perf. csg. 6,778-80 ft.; tstg.
Peyton Bros. No. 1 Pansy Yount, A. Hous-ton Sur. Drlg. sh. 6,224 ft.
Stanolind O. & G. Co. No. 1 J. W. Hall, H. Williams Sur. T.D. 6,103 ft.; perf. csg. 6,099-6,101 ft.; perf. csg. 5,600-06 ft.; tstg.
Stanolind O. & G. Co. No. 1, McCormick Sur. 10¾-in. csg. 1,629 ft.; cg. sh. 5,-328 ft.
Stanolind O. & G. Co. No. 2 Sargl, H. Williams Sur. 16-in. csg. 60 ft.; T.D. 6,100 ft.; 7-in. csg. 6,020 ft.
Stanolind O. & G. Co. No. 3 Sargl, H. Williams Sur. R.U.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 2 M. E. Fitz-hugh, Wm. McFaddin Sur. Drlg. sh. 1,-912 ft.
Stanolind O. & G. Co. No. 4-A Pipkin. T.&N.O. Sur. R.U.

Fannett—Jefferson County

Gulf Oil Corp. No. 8 Junker, Wm. Smith Sur. R.U.

LaBelle—Jefferson County

Sun Oil Co. No. 1 John Ward, 933 ft. S of No. 2 Broussard, Wm. Burton Sur. 18⅝-in. csg. 109 ft.; T.D. 8,598 ft.; 9⅝-in. csg. 8,538 ft.; W.O.C.

Nome—Jefferson County

Shell Petroleum Corp. No. 2 Texas Public Service Co., W. H. Aldridge Sur. Drlg. sh. 4,337 ft.
Shell Pet. Corp. No. 1 Unit "B," M. E. Peveto Sur. T.D. 6,048 ft.; run csg.
Sun Oil Co. No. 2 J. E. Burrows, J. Blair Sur. Drlg. sh. 1,196 ft.
Sun Oil Co. No. 4 Hugh Longe, J. Blair Sur. T.D. 6,050 ft.; 5¾-in. csg. 6,000 ft.
Sun Oil Co. No. 5 Long, J. Blair Sur. Loc.
Sun Oil Co. No. 1 A. J. Mouboules, J. Blair Sur. 10¾-in. csg. 1,062 ft.; T.D. 8,768 ft.; P.B. 8,175 ft.; tstd. S.W.; P.B. and sdtrkd.; T.D. 5,678 ft.; 7-in. csg. 5,-630 ft.; swbd. S.W.; no pressure; P.B.
Sun Oil Co. No. 7 Paggi-Aldridge Sur. T.D. 6,052 ft.; 7-in. csg. 6,000 ft.
Sun Oil Co. No. 8 Paggi, J. W. Kirby Sur. Drk.

Cleveland—Liberty County

Gulf Oil Corp. No. 17-C Kirby, J. Pleas-ants Sur. T.D. 5,887 ft.; 7-in. csg. 5,882 ft.; I.P. 133 B.P.D.; ¼-in. ck.

Ganado—Jackson County

Texas Co. No. 1 Hultquest, D. Dempsey Sur. 10-in. csg. 1,210 ft.; drlg. sh. and L. 4,202 ft.

Hull—Liberty County

Bishop Oil Co. No. 1 C. R. Wilson, J. De-Vore Sur. Oil sd. 780-88 ft.; drlg. sh. 3,837 ft.
D.&L. Production Co. No. 4 Mecon and Layton, J. DeVore Sur. T.D. 4,955 ft.; set screen; tstg.; pmpg. 200 B.P.D.
Eclipse Oil Co. No. 1 Barrow. T.D. 5,014 ft.; S.D.
Gulf Oil Corp. No. 23 Baldwin, J. Devore League Sur. Oil sd. 4,975-5,014 ft.; T.D. 5,016 ft.
Hamil and Smith No. 1 Barngrover, J DeVore Sur. Drlg. sh. 6,100 ft.
Republic Prod. Co. No. 162 Dolbear, J. De-Vore Sur. T.D. 2,960 ft.; P.B. and sdtrkd.; drlg. 2,854 ft.
Texas Co. No. 6 Hannah, J. Devore Sur. T.D. 4,744 ft.; 7-in. csg. 4,738 ft.; I.P. 10 B.P.H.; ¼-in. ck.

Bay City—Matagorda County

Hamman Expl. Co. No. 2 Cleveland, E. Hall Sur. Drlg. sh. 4,996 ft.

Palacios—Matagorda County

Glenn H. McCarthy No. 1 Foley Land Co., L. Goodwin Sur. Drlg. sh. 1,480 ft.

Hawkinsville—Matagorda County

Sun Oil Co. No. 2 Craig, T. Williams Sur. Top salt 796 ft.; base salt 2,099 ft.; 18⅝-in. csg. 2,174 ft.; 13⅜-in. csg. 3,700 ft.; 9⅝-in. csg. 5,689 ft.; T.D. 5,969 ft.; cutting and pulling 4-in. drill pipe.

Orange—Orange County

Texas Co. No. 12 A. J. Kuhn, T. J. Nolgrass Sur. Drk.

Van Vleck—Matagorda County

Royal Oil Co. No. 1 Fine Holub, M. Cum-mings Sur. T.D. 8,280 ft.; abd.
Skelly Oil Co. No. 2 Johnson, M. Cum-mins Sur. Drlg. 2,900 ft.
Skelly Oil Co. No. 2 Grace Moore, I.&G.N. Sur. T.D. 7,495 ft.; 7-in. csg. 7,494 ft.; prep. to perf.

Livingston—Polk County

Ownby Drlg. Co. et al No. 9 H. J. Pratt, A. Viesca Sur. T.D. 4,227 ft.; 5-in. csg. 4,196 ft.; I.P. 384 B.P.D.; ¼-in. ck.
Ownby Drlg. Co. No. 10 Pratt, A. Viesca Sur. Drk.

Segno—Polk County

J. K. Dorrance No. 1 Sarah F. Wing, I.&G. N. Sur. No. 15. Drlg. 5,195 ft.; 7-in. csg. 5,177 ft.; split csg.; will run 5-in. csg.
J. K. Dorrance No. 4 Wing, I.&G.N. Sur. No. 15. S.D. 4,556 ft.
Gulf Oil Corp. No. 1 Ragan, I.&G.N. Sur. No. 15. R.U.
Gulf Oil Corp. No. 2 Wing, I.&G.N. Sur. No. 15. Loc.
Gulf Oil Corp. No. 3 Wing, I.&G.N. Sur. No. 15. T.D. 5,193 ft.; 7-in. csg. 5,182 ft. I.P. 160 B.P.D.; ¼-in. ck.
Humble O. & R. Co. No. 3-B Kirby Lbr. Co., Marcell Victor Sur. Drlg. sh. 4,-973 ft.
Laquinta Oil Co. No. 2 Wing, I.&.G.N. Sur. No. 15. Drlg. sh. 3,027 ft.
Laquinta Oil Co. No. 3 Wing, I.&G.N. Sur. No. 15. Loc.
Rajo Oil Corp. No. 1 Wing, I.&.G.N. Sur. No. 15. T.D. 5,198 ft.; run csg.

Quintana-O'Connor-Greta—Refugio County

Cosmo Pet. Co. No. 16 Heard, Blk. 119, Refugio Townsite. T.D. 4,937 ft.; tested dry, deepening.
Houston Oil Co. No. 31 Rooke, T. Mullen Gr. T.D. 4,917 ft.; 7-in. csg. 4,907 ft.
Quintana No. 6 Heard, Webb Sur. T.D. 5,925 ft.; W.O.C.
Quintana No. 15-C Tomoconnor, Swisher Sur. Drlg. sh. 5,712 ft.
Quintana Oil Co. No. 48-A Tomoconnor, Swisher Sur. Drlg. 4,239 ft.
United Gas Co. No. 49 Lambert, Swisher Sur. Drlg. sh. 5,812 ft.
United Gas Co. No. 51 Lambert, Swisher Sur. T.D. 5,915 ft.; I.P. 99 B.P.D.; 7/64-in. ck.
United Gas Corp. No. 12 J. J. O'Brien. S.D. 8,357 ft.
United Gas Corp. No. 42 Tomoconnor, Swisher Sur. Drlg. sh. 3,839 ft.

Spurger—Tyler County

Republic Production Co.-Houston O. Co. No. 3 Hurd, N. Hurd Sur. R.U.

Keeran—Victoria County

Gulf Oil Corp. No. 11 J. M. Keeran, M. DeLeon Sur. Drlg. sdy. sh. 5,525 ft.
Union Oil Co. of Calif. No. 4 Keeran, M. DeLeon Sur. T.D. 6,004 ft.; rmg.

McFaddan—Victoria County

Transwestern Oil Co. No. 3 J. A. McFadden, Julus Varian Sur. Drlg. sd. 2,-700 ft.

Placedo—Victoria County

Barnsdall-American Liberty Oil Co. No. 10 J. M. Pickering, Wm. Rupley Sur. Cg. sh. 6,744 ft.
Barnsdall Oil Co.-American Liberty Oil Co. No. 16 Pickering, S.A.&M.G. Sur. T.D. 4,776 ft.; 7-in. csg. 4,752 ft.
Costa Oil Co. et al No. 2 J. E. Schovajsa, Wm. Rupley Sur. T.D. 4,772 ft.; jet with gas; I.P. 60 bbls. of fluid per day, 80% S.W.
Haynes B. Owenby No. 3 Traylor, S.A.&M. G. Sur. T.D. 4,771 ft.; 5-in. csg. 4,756 ft. I.P. 120 B.P.D.
Lion O. & R. Co. No. 3 S. W. Wright, S.A.&M.G. Sur. Drlg. sh. 1,908 ft.
Magnolia Petroleum Co. No. 8 Sklar, S.A.&M.G. Sur. No. 17. Drlg. sh. 2,880 ft.
Portilla O. & G. Co. No. 1 T. P. Traylor. S.A.&M.G. Sur. No 11 T.D. 5,351 ft.; fsg.
Salt Mount Oil Corp. No. 1 O. A. Lola, Wm. Rupley Sur. Spudded.
Shell Pet. Corp. No. 4 Houston Natl. Bank, S.A.&M.G. Sur. No. 7. T.D. 4,760 ft.; 7-in. csg. 4,756 ft.
Superior O. & G. Co. et al No. 6 J. J. Hosek, S.A.&M.G. Sur. 7-in. csg. 4,753 ft.; I.P. 160 B.P.D.
Superior Oil Prod. Co. No. 8, J. J. Hosek. S.A.&M.G. Sur. No. 1. T.D. 4,765 ft.; 7-in. csg. 4,756 ft.
Superior Oil Co. and Gillespie No. 5 J. J. Hosek, S.A.&M.G. Sur. No. 7. T.D. 4,759 ft.; 7-in. csg. 4,754 ft.
Westgate Oil Co. No. 6 Mieska, S.A.&M.G. Sur. T.D. 4,779 ft.; run csg.

Clay Creek—Washington County

Oak Oil Corp. No. 1 G. Cockrell, J. F. Perry Square Sur. Drk.
Sun Oil Co. No. 6 Droger, J. Perry Sur. Drlg. sh. 2,312 ft.
Virginia Oil Co. No. 1 Joe Kenieczny, S. M. Williams Sur. 10¾-in. csg. 104 ft.; T.D. 2,145 ft.; fsg.

Five Corners—Wharton County

Texas Co. No. 7-B Pierce Est., J. Caldwell Sur. T.D. 5,555 ft.; 7-in. csg. 5,554 ft.

Louise—Wharton County

C. E. Oil Co. No. 1 R. C. Fair, Morris and Cummins Sur. No. 290. Drk.
Pure Oil Co. No. 6 McIntyre, Morris and Cummings Sur. No. 288. 9⅝-in. csg. 916 ft.: T.D. 5,160 ft.; 5½-in. csg. 5,160 ft. comp.; no report.

Magnet—Wharton County

Atlantic Ref. Co. No. 1-B H. C. Cockburn, J. Smith and McKenzie Sur. Loc.
W. W. Van Allen-Texas Crusader No. 1 Sweet, J. Smith and McKenzie Sur. R.U.

Pickett Ridge—Wharton County

Texas Co. No. 33-A Pierce Est., G.B.&N. Sur. No. 4; 9,000-ft. test. Drlg. gbo. 1,-763 ft.
Texas Co. No. 1 Earnest Wittig, J. Tel-fener Sur. T.D. 4,598 ft.; 7-in. csg. 4,-584 ft.

Spanish Camp—Wharton County

Albert Plummer-Felmont Oil Corp. No. 1 M. Sarrell, S. F. Austin Sur. No. 1. Spdd.

Withers—Wharton County

Texas Co. No. 27-C Pierce Est., Wm. Pettus Sur. T.D. 5,554 ft.; 7-in. csg. 5,547 ft.; tstg.
Texas Co. No. 28-C Pierce Est., Wm. Pet-tus Sur. Drlg. sh. and L. 4,878 ft.
Texas Co. No. 29-C Pierce Est., Wm. Pettus Sur. 16-in. csg. 38 ft.; drlg. gbo. 1,050 ft.

GULF COAST WILDCATS

Austin County

Cockburn et al No. 1 Forester, S. J. Sloan Sur. Drlg. sh. 2,312 ft.
R. L. Hopkins No. 1 J. W. Recnecke, J. Stephenson Sur. Cg. sh. 4,459 ft.

Brazoria County

Pure Oil Co. No. 1 P. M. Slade, S. F. Austin Lge. T.D. 7,842 ft.; D.S. stuck.
Texas Co. No. 2 Robbins, James W. Brougham Sur. 13⅜-in. csg. 5,498 ft.; 9⅝-in. csg. 6,060 ft.; W.O.C.

Colorado County

Coyle & Concord No. 3-B Powell, I.&G.N. Sur. No. 45. R.U.
Humble O. & R. Co. No. 1 Relaw Land Co., J. L. Duggan Sur. R.U.

Fort Bend County

John Byers No. 1 Lockwood-Sharpe, Wm. McMahon Sur. M.I.

Harris County

H. J. DeArman et al No. 1 Tyrell-Garth, L. Hemmingway Sur. Drlg. L. 5,392 ft.
Superior Oil Co. No. 1 Butler, Eehrhardt Sur. Drlg. sh. 2,675 ft.

Jefferson County

Magnolia Pet. Co. No. 1 J. H. Phelan, T.&N.O. Sur. No. 14, 13⅜-in. csg. 3,-016 ft.; drlg. sh. 8,372 ft.
H. B. Smith and R. Smith No. 1, J. W. McGaffey Sur. Loc.

Lavaca County

Welshire Union Oil Co. No. 1-A Pohl, F. Bass Sur. T.D. 3,250 ft.; P.B. 2,950 ft.; two tests failed; S.D.

Liberty County

Jack Frazier et al No. 1 B. F. Haoachy, Hugh B. Johnson Sur. Drk.

Matagorda County

Continental Oil Co. No. 2 Hawkins Est D. McCarthy Sur. 20-in. csg. 120 ft.; T.D. 830 ft.; W.O.C.
Continental Oil Co. No. 2 Robbins, J. C. Franz Sur. 11¾-in. csg. 6,430 ft.; T.D. 8,912 ft.; 8⅝-in. csg. 8,912 ft.; T.D. 11,-600 ft.; abd.
United North & South Development Co. No. 1, J. S. Cotton Sur. T.D. 9,895 ft.; 7-in. csg. on bttm.; prep. to perf.

Montgomery County

C. E. Gates No. 1 South Texas Long Leaf Lbr. Co., Walker Co. Sch. Ld. Move in.

Polk County

C. E. Gates No. 1 L. O. Jackson, J. W. Abbey Sur. 10¾-in. csg. 487 ft.; T.D. 5,557 ft.; abd.

Trinity County

McArthur & Nixon No. 1 Kountze, J. A. Hankins Sur. Run csg. 1,438 ft.
West Prod. Co. No. 1 Texas Long Leaf Lbr. Co., John Williams Sur. Drlg. sh. 2,532 ft.

Walker County

Garland, Hartman & Page No. 1 Carey Ld. & Dev. Co., D. M. McDonald Sur. R.U.

Waller County

Stanolind O. & G. Co. No. 1 Wm. Hargrove, T. S. Reese Sur., sec. 110. 10¾-in. csg. 2,510 ft.; cg. sh. 6,805 ft.

Washington County

K. D. Harriss and Starr No. 1 Ellerman, A. D. Houston Sur. R.U.

Wharton County

S. G. Harrison and H. E. Williams No. 1 H.&G.H. Harfst, Lyman Conlsrite Sur. Drlg. sh. 3,887 ft.
Smith and McDannald No. 1 Martin, I.& G.N. Sur. No. 16. Drlg. sh. 3,052 ft.

S. W. TEXAS WILDCATS

Aransas County

Barnsdall Oil Co. No. 1-A Kate Edwards, 330 ft. S line, Lot 85, 660 ft. SW No. 1, Wm. Lewis Sur. Cg. 7,759 ft.
Danray Oil Co. No. 1 Davis, Tr. 5, Wm. Boyd Sur. R.U.

Atascosa County

Hierholzer et al No. 1 fee, Sur. 5. D.&A. 520 ft.
Helvetia Oil Co. No. 2 Pratt, Garza Sur. 46. D.&A. 2,432 ft.

Bastrop County

Marts & Beavers No. 1 Harris, McKean Sur. Drlg. 1,721 ft.
R. Pulliam No. 1 Yoast, Garcia Sur. R.U.

Bee County

Butler & Turner No. 1 Scott, Sec. 7, Howeth & Singer Sur., Uranga grant. Drlg. 2,593 ft.
L. Glasscock No. 1 Ablinger, J. Ryan Sur Set sur. csg. 1,350 ft.; sd. 4,828-50 ft T.D. 5,945 ft.; blew out and controlled; C.P. 3 000 lbs.; drlg. in sdtrk. hole 5,421 ft.
F. Shields No. 1 Harris, Blk. 4, Catlett & O'Neill Sur. Loc.

Blanco County

E. L. Nixon No. 1 Hornberger, 1,200 ft. S line, 300 ft. E line, Sur. 723. Drlg. 913 ft.

Brooks County

Gifford Oil Co. No. 1 Singer, Sur. 630. Drlg.
Wyrick Well Sur., Inc., No. 1 Singer, Sur. 436. R.U.
Standard of Tex. No. 1 Mestina, Mestina Lse. No. 3. D.S.T. 2,395-2,405 ft.; rec. 165 ft. fluid, some oil in 12 min.; set csg.; D.S.T. 2,415-22 ft.; rec. sulfur wtr.; drlg. 3,921 ft.

Burleson County

M. R. Exploration Co. No. 3 Fountain Wm. Raleigh Sur. M.I.M.
Red Bank Oil Co. No. 2 Grann, 6,063 ft N line, 1,900 ft. W line, E. Santef Sur M.I. rig.

Caldwell County

Crosby et al No. 1 fee, SW Lockhart Ed. L. sur. 1,843-47 ft.; set csg.
Housel Oil Co. No. 1 Driscoll. Drlg. 1,620 ft.
C. R. Richardson No. 1 Patterson, S. Pettus Sur. Drlg. 682 ft.
Sherman Nelson No. 1 Etheridge, T. Hunter Sur. T.D. 2,180 ft.; R.U.; W.O.O.
Taylor Ref. Co. No. 1 Hughes, Reavil Sur. T.D. 2,077 ft.; D.&A.

Cameron County

Saxet Prod. Co. No. 1 Port Isabel Irr. Co. 600 ft. N line Loma Alta Lake, Sh. 29 Espiritu Santa Gr. Spudded and Stdg.
Stapper Petroleum Corp. No. 1 Port Isabel Irrigation Co., Blk. 17, P.I.I.Co. Subd Santo Gr. Drlg. 7,726 ft.

DeWitt County

Caldaboard Oil Corp. No. 1 Afflerbach, 1,000-ac. tr. T.D. 4,260 ft.; D.&A.

Dimmitt County

Wilcox O. & G. Co. No. 1 Light ranch. 330 ft. N and E line, sec. 67. Drlg. 5,576 ft.

Duval County

Geo. Viterio No. 1 E. E. Cadena, Blk. 6, Cadena Ranch Subd., Hinojosa Gr. Drlg. 4,120 ft.

Edwards County

Auld, Dodson & Lyman No. 1 Rigsby, sec. 16. Set. 8¼-in. csg. 3,040 ft.; W.O.C.

Frio County

Amerada Pet. Corp. No. 1 Harriman. Flores Sur. 306. Lost hole; cleaning new hole 1,100 ft.

Goliad County

Goliad Oil Corp. No. 1 Cole, 206 ft. W line, CN&SL. Lot 33, Goliad Town Trs. Drlg. 5,123 ft.

Guadalupe County

J. K. Blackman No. 1 McKay, Hodges Sur. Drlg. 2,659 ft.
J. K. Blackman No. 1 Appling, Hodges Sur. Drlg. 261 ft.
Byrd Oil Co. No. 1 Schueneman, G. DeWitt League. Cg. chalk.
J. E. Clark No. 1 Knodel, G. DeWitt Sur. Drk.
J. E. Clark No. 1 Schneider, J. Cantu Sur. Drk.
Louis Crouch No. 1 King, J. D. Clements Sur. R.U.
Lincoln Pet. Co. No. 1 Baenzinger, Mansola Sur. Set csg. 1,990 ft.; drlg. plugs.
Robertson et al No. 1 Blumberg, M. Baker Sur. Drlg. 1,026 ft.

Hidalgo County

Young & Bonneau No. 1 Diaz, Tr. 331, Porc. 40. Sd. 3,027-32 ft.; S.D. 3,035 ft.; W.O.O.

Jim Hogg County

Cole Pet. Co. No. 1 Yeager, Sur. 452. Cg. 2,956 ft.
Nordan & Morris No. 1 Badger, SW¼ Sur. 640. Drlg. 1,863 ft.

Jim Wells County

Magnolia Pet. Co. No. 7 Seeligson. 10,433-ac. tr., Los Jaboncillos Gr. Drlg. 1,315 ft.
Roberts et al No. 1 Wade, Lot 2, Wade ranch. Loc.
Wellington Oil Co. No. 1 C. D. Sevier, 5,877 ft. E line, 5,525 ft. S line, Lola Gr. Drlg. 2,392 ft.

Live Oak County

Empire G. & F. Co. No. 1 Geo. West, Lot 107, Blk. "B," G. West Subd. Drlg. 3,032 ft.
S. E. Wilson No. 1 Southwestern Life Ins. Co., NE¼, NW¼, Blk. 57, Simmons City Subd. Drlg. sh. 1,023 ft.

McMullen County

H. K. Boysen No. 1 Murphy, Murphy Sur. 480. Drlg. 2,113 ft.
Humble O. & R. Co. No. 4 Edrington, Sur. 63. Drlg. sh. 2,772 ft.
E. M. Jones No. 3 Ezell, SE¼, sec. 3, Ezell ranch. Drlg. 1,275 ft.
Rowan & Hope No. 1 Rhodes, NE¼ sec. 18, Seale & Morris Sur. M.I.M.

Medina County

Lynd & Fondren No. 1 Lynd, 9 mi. W of Hondo. D.&A. 1,800 ft.

Nueces County

Clarkwood Oil Co. No. 1 H. B. Baldwin, Blk. 11, Russell Farm Lots. T.D. 6,130 ft.; rmg. rathole.
L. Glasscock No. 1 Kansas Life. Ins. Co., 330 ft. N and W lines, sec. 196. S.D. 6,030 ft.
Green River Oil Co. No. 1 Cassens, sec. 26, Longorio Sur. Spudded.
H. P. R. Oil Co. No. 1 River Bros., 80-ac. tr., sec. 301, Bishop Subd. Loc.
Phillips Pet. Co. No. 1 Harney, Sh. 11, Gregoria Farias Gr. (W.O.). Old T.D. 4,279 ft.; washing.
Seaboard Oil Corp. No. 1 James Luby, Blk. 4, Mary Luby Subd., Petronilla ranch. Spudded.
Southern Minerals Corp. No. 1 R. King, sec. 32, King Farm Lots. S.D.; T.D. 6,000 ft.
Taylor Pet. Co. No. 1 Stiles, Blk. 14, sec. 18, Petronilla ranch. Set sur. csg. 500 ft.; drlg. below.

Real County

Sun Oil Co. No. 1 Dietert, 1,980 ft. E line, 660 ft. S line, sec. 7, G.W.T.&B. Sur. T.D. 5,956 ft.; D.&A.

San Patricio County

Wheelock & Collins No. 1 Willis, Lot 3, Gregory Farm Sur. T.D. 5,568 ft.; S.D.

Starr County

Calderoni-James-Follette No. 1 Rodriguez, Blk. 6, Sh. 56, Porc. 80. Set sur. csg. 100 ft.; W.O.C.
Cook, Morris & Arnold No. 2 S.C.C.C., Blk. 23, Porc. 89. Drlg. 1,942 ft.
Donroy Oil Co. No. 1 Ramon, 2,400 ft. SE line, 150 ft. SW line, sec. 150. Cg. 1,281 ft.
Henry Mode et al No. 1 Kelsey-Bass, Blk. 7, Porcs. 86 and 87. Set csg. 157 ft.; W.O.C.
Schwab & Foster No. 1 Munoz, 1,478-ac. tr., El Javali Gr. Drlg. 1,523 ft.
Transwestern Oil Co. No. 2 Slick, 330 ft. N and E lines, sec. 527. T.D. 5,659 ft.; P.B. 4,700 ft to straighten hole.

Webb County

Bolling & Coffey No. 1 South Texas C. Co., Sur. 768. Drlg. 1,721 ft.
C. H. Brady No. 1 Garcia, Sur. 786. Loc.
Eugene Garner No. 2 Saldivar, Blk. 12, Sur. 567. Oil sd. 997-1,000 ft.; set csg.; W.O.C.
J. W. Magee No. 1 Garcia, Blk. 21, James Subd. R.U.
Paul Meaders No. 1 Garcia, Sur. 338. Loc.
L. Purnell No. 1 Rosa Benavides, Surs. 677 and 721. Cg. 2,511 ft.
F. M. Shaver No. 1 Trafton, Sur. 281. R.U.

Willacy County

Ruez-Morton, Inc., No. 1 F. Armendiaz, C Lot 9, Sh. 4, San Juan de Carricitos Gr. Drlg. 537 ft.
Ruez-Morton, Inc., No. 1 Johnson-Stillman, Lot 14, Blk. 25, Sh. 44, San Juan de Carricitos Gr. S.D. 643 ft.

Wilson County

Maryland Oil Co. No. 1 Rice, 93-ac. tr., Mays Sur. M.I.M.

Zapata County

H. Guinn Lewis No. 1 S. Benavides. Blk. 39, Villa Gr. S.D.; W.O.O.; 2,039 ft.
Lewis Prod. Co. No. 1 Martinez, Blk. 123. Cg. 1,131 ft.
Lundell Prod. Corp. No. 1 Ramirez, Sh. 1, Porc. 18. Drlg. 2,375 ft.
Westheimer & Daube No. 1 Lopez, Sur. 288. Drlg. 1,210 ft.

Zavalla County

Wilcox O. & G. Co. No. 1 Gillman. sec. 11. S.O. 3,940 ft.; stuck tools and hole bridged; C.O.

S. W. TEXAS PROVEN

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 2 Maryland Trust Co., 330 ft. N and E lines, Blk. 23. Set csg. 6,516 ft.; T.D., sh. 6,552½ ft.; jetting S.W. and oil; (fluid 95% S.W. and 5% oil).
Atlantic Ref. Co. No. 1 Murray, Lots 3 and 4, sec. 38. Sd. 6,536½-48 ft.; completing.
Atlantic Ref. Co. No. 1-B Murray, Lot 16, Blk. 12. M.I.M.
Buckingham Oil Co. No. 7-A McCampbell, cen. E½, Lot 5, Blk. 42. R.U.
Buckingham Oil Co. No. 3-B McCampbell, Blk. 40. Drlg. 2,910 ft.
Eleanor Oil Co. No. 1-A McCampbell, Blk. 58. Drlg. 1,246 ft.
Landreth Prod. Co. No. 1 McCampbell, Lot 4, Blk. 40. Drlg. 6,511 ft.

Plummer—Bee County

Ann Oil Co. No. 2 Smith, J. R. Johnson Sur. Drlg. 230 ft.
W. C. McBride, Inc. No. 1-B Smith, 20-ac. tr., sec. 33, Plummer Subd. Sd. 3,039-57 ft.; comp.; no gauge.

Strouch—Bee County

Texas Prospecting Co. No. 2 Berger, SW¼ sec. 19, Uranga Gr. T.D. 4,365 ft.; D.&A.

Lone Oak—Bexar County

W. D. Bacon No. 1 Saffel. D.&A. 2,104 ft.

Von Ormy—Bexar County

R. Putnam No. 7 Wetz. Comp. 4 B.P.D.; T.D. 638 ft.
Shadrock Oil Co. No. 10 Barragan, J. Simpson Sur. Drlg. 472 ft.

Alta Mesa—Brooks County

Standard of Texas No. 5 Mestina, Lease No. 1. Drlg. 3,504 ft.
Standard of Texas No. 6 Mestina, Lse. No. 1. Drlg. 2,920 ft.

Alta Verde—Brooks County

L. & W. Oil Co. No. 1 Singer, Blk. 8, Sur. 436. D.&A. 948 ft.

Luling-Branyon—Caldwell County

Fred Adams No. 8 Ellison, D. Cooper Sur. M.I.M.
Belcher No. 1 Fulcher. Set surf. csg.; W.O.C.
Blundell Oil Co. No. 2 Luce, J. Neill Sur. Comp.; 250 B.P.D.; T.D. 2,176 ft.
Blundell Oil Co. No. 3 Luce, J. Neill Sur. Set csg. 56 ft.; W.O.C.
Chiquita Oil Co. No. 4 Robertson, Neill Sur. Comp.; 400 B.P.D.; T.D. 2,207 ft.
Chiquita Oil Co. No. 5 Robertson, Neill Sur. R.U.
Easton & Manning No. 5 Lawler, J. Pinchback Sur. R.U.
Eckert & Sons No. 2 Fulps, Neill Sur. T.D. 2,182 ft.; comp.; 243 B.P.D.
Lanning & Coffield No. 1 Corder. Swbg.; T.D. Buda 2,179 ft.
Lincoln Pet. Co. No. 4. Callihan, Cooper Sur. Comp.; 55 B.P.D.; T.D. 2,155 ft.
Magnolia Pet. Co. No. 1 Tiller, Henry Sur. R.U.
R. Mallory No. 1 Browne, Miller Sur. R.U.
C. H. Mee No. 4 Lancaster. Comp.; 90 B. P.D.; T.D. 2,191 ft.
Memphis Nat. Gas Co. No. 2 Young, Miller Sur. Cg. 2,126 ft.
Sherman Nelson No. 2 Branyon, D. Cooper Sur. Drlg. 2,073 ft.
Sherman Nelson No. 1 Clark, Tiller Sur. Drk.
Taylor Pet. Co. No. 1 Caldwell County, 4-ac. tr., D. Cooper Sur. Drlg. 566 ft.
Taylor Ref. Co. No. 1 Patten. Comp.; 15 B.P.D.; T.D. 2,226 ft.
Wm. Swearingen No. 1 Best, J. Neill Sur. Set csg. 2,054 ft.; W.O.C.
Texas Gulf Pet. Co. No. 2 McCrory, Neill Sur. D.&A. 2,285 ft.
S. M. Vaughy No. 5 Flowers, Neill Sur. R.U.
W.T.D. Oil Co. No. 6 Browne, Miller Sur. Comp. on pmp.; no gauge; T.D. 1,905 ft.

Buchanan—Caldwell County

Easton & Manning No. 2 Cude, Spillars Sur. R.U.
L. G. Priest No. 1 Chambless, S. Goodman Sur. R.U.
Texas Gulf Pet. Co. No. 1 Medlin, Camon Sur. R.U.

Dunlap—Caldwell County

Kay Oil Co. No. 1 Dunlap, S. Seale Sur. Chalk 1,928-2,036 ft.; set csg.; W.O.C.
Crouch Oil Co. No. 4 Starke, Seale Sur. Comp.; 60 B.P.D.; T.D. 1,262 ft.
McKenzie Oil Co. No. 1 Pierce. D.&A. 2,060 ft.

Salt Flat—Caldwell County

J. R. Brinkley No. 1-A Trammel. Comp.; est. 200 B.P.D.; T.D. 2,103 ft.
Chiquita Oil Co. No. 5 Hickman, G. Hinds Sur. R.U.
H. A. Pagenkopf No. 1 Hanson, J. Hinds Sur. Top Edws. 2,645 ft.; T.D. 2,648 ft.; completing.

Charamousca—Duval County

N. V. Duncan No. 23 Worden & Draught, Sur. 151. Sd. 1,531-40 ft.; set csg.; W.O.C.

Colmena—Duval County

Wellington Oil Co. No. 5 D.C.R.C., Blk. 10, sec. 51. R.U.
Wellington Oil Co. No. 9 D.C.R.C., Blk. 9, Sur. 52. Comp.; 100 B.P.D. on ⅝-in. ck.; sd. 1,464-72 ft.
Wellington Oil Co. No. 10 D.C.R.C., Blk. 9, Sur. 52. D.&A. 1,496 ft.

Driscoll—Duval County

Continental Oil Co. No. 14-A Driscoll-Sevier Sur. 447. T.D. 3,414 ft.; comp.; 111 B.P.D.

Government Wells—Duval County

Bridwell Oil Co. No. 8-A Hahl, Sur. 250. D.&A. 2,369 ft.
Magnolia Pet. Co. No. 19 Wilson, Sur. 134. Set csg. 2,428 ft.; W.O.C.

Kohler—Duval County

Bunn Bros. & Coates No. 5-B Peters, 81-ac. tr., sec. 29. Sd. 1,825-27 ft.; tstd. gas; sd. 1,829-35 ft.; odor oil and gas; set csg.; W.O.C.
Chiquita Oil Co. No. 1 Peters, 162-ac. tr., Sur. 162. Stdg. with csg. set 100 ft.
Humble O. & R. Co. No. 59-A Kohler, Sur. 164. Drlg. sh. 127 ft.
Windsor Oil Co. No. 5-B Peters, Sur. 34. Loc.

Labbe—Duval County

Humble O. & R. Co. No. 1 Roos et al, sec. 119. Set csg. 2,871 ft.; comp.; 50 B.P.D. on pmp.
Humble O. & R. Co. No. 2 Ross, sec. 119. Drlg. cal. 137 ft.
Magnolia Pet. Co. No. 4 Labbee ranch, Sur. 1. Drk.

Loma Novia—Duval County

F. J. Gravis No. 4 Hahl, Sur. 64. R.U.
Humble O. & R. Co. No. 16 Vela, sec. 42. Drlg. sh. 1,025 ft.
Humble O. & R. Co. No. 2-C Wilder, sec. 73 (W.O.). Old T.D. 2,734 ft.; R.U. to D.D.
Magnolia Pet. Co. No. 14 Herbst, sec. 70. Sd. 2,741-55 ft.; comp.; 35 B.P.D. on pmp.
Magnolia Pet. Co. No. 15 Herbst, sec. 70. R.U.
J. V. Redick No. 1 Bishop, S½, N½, sec. 57. D.&A. 2,593 ft.
Texas Co. No. 26 Bishop, Sur. 57. Swbg. in; T.D. 2,574 ft.
Texas Co. No. 5-B Ruiz, sec. 41. Set 7-in. csg. 2,571 ft.; T.D. 2,579 ft.; W.O.C.

Lopez—Webb—Duval Counties

W. C. Billings No. 2 fee, Sur. 2. Drlg. 1,170 ft.
Glen Harroun No. 2 Lopez, Sur. 110. Comp.; 75 B.P.D.; T.D. 2,269 ft.
Glen Harroun No. 3 Lopez, Sur. 110. Drlg. 1,017 ft.
Kepley Prod. Co. No. 1 Billings, NW¼, Sur. 6. Cg. 2,291 ft.
Mortimer & Springer No. 16-B Lopez, Sur. 112. Drlg. 2,182 ft.
Superior Oil Co. No. 20 Billings, Sur. 109. T.D. 2,284 ft.; comp.; est 100 B.P.D.

North Sweden—Duval County

Argo Oil Co. No. 1 Carrillo, NE¼, sec. 9. Drlg. wtr. well.
Arkansas Fuel Oil Co. No. 1 Vaello Puig, 330 ft. N and E line, sec. 10, Sweden Farm Lots. Loc.
Benedum & Trees Oil Co. No. 1 Puig, 330 ft. N and W lines, 750-ac. tr., San Andres Gr. Cg. 4,006 ft.
W. Goldston et al No. 1 Farrias, NE¼, Blk. 9, Sur. 25, Sweden Farm Lots. Loc.
Frank Gravis No. 2 Vaello Puig, 990 ft. S line, 330 ft. W line lse., San Andres Gr. Drlg. 2,865 ft.
Highland Oil Co. No. 1 Farrias, Sweden Farm Lots. Cg. sh. 4,792 ft.
Parr Oil Co. No. 1 Vaello Puig, Sur. 24, S. Flores Gr. Drlg. 3,326 ft.
Reynosa Oil Co. No. 1 Wilson, Blk. 9, Sweden Farm Lot. R.U.
Smith & Storey No. 1 Smith, Blk. 9, Sweden Farm Lots. Drlg. 556 ft.

Palangana—Duval County

F. J. Gravis No. 2-A Schallert, Sur. 255. Set sur. csg.; W.O.C.
Penn Palangana Oil Co. No. 1 C. K. Gravis, Sur. 250. Drlg. 1,140 ft.
Tuttle & Trahan No. 1 Megerle, Sur. 245. Drlg. 1,021 ft.

Piedra Lumbre—Duval County

Magnolia Pet. Co. No. 2 D.C.R.C., Sur. 203. Drlg. 521 ft.
Texas Co. No. 22 D.C.R.C., SW¼, Sur. 100. Set csg. 1,975 ft.; comp.; 90 B.P.D.
Texas Co. No. 23 D.C.R.C., SW¼, Sur. 100. R.U.

Seven Sisters—Duval County

A. J. Brinkoeter No. 2 Garcia, Sur. 212. Sd. 2,655-65 ft.; set 7-in. 2,655 ft.; W.O.P.
Humble O. & R. Co. No. 15 Dowdy, sec. 272. R.U.
Humble O. & R. Co. No. 17 Dowdy, sec. 272. Comp.; 16 B.P.H.; T.D. 2,569 ft.

Sweden—Duval County

Hiawatha Oil Co. No. 2 Herberger, SW¼, Blk. 14, Agua Poquita Gr. T.D. 5,914 ft.; P.B. sd. 5,072-91 ft.; to perf.
Hiawatha Oil Co. No. 1 Southland, sec. 15, Ball Ranch Subd. T.D. 5,939 ft.; P.B. and perf. 5,100-06 ft.; blew out; controlled and comp. for 20,000,000 ft. of gas and spray of oil.

Thomas-Lockhart—Duval County

Thomas Est. & Lockhart Bros. No. 2 Parr, SW¼, sec. 26. Cg. 4,773 ft.

Pearsall—Frio County

Amerada Pet. Corp. No. 1 Halff & Oppenheimer (W.O.). Old T.D. 6,312 ft.; R.U. to D.D.
Amerada Pet. Corp. No. 8 Halff & Oppenheimer, S. A. Ditch Sur. 1,104 (W.O.). Fsg. 9,450 ft.
Amerada Pet. Corp. No. 1 Kothman, B. L. Crouch Sur. (W.O.). Old T.D. 4,370 ft.; C.O. to D.D.
Amerada Pet. Corp. No. 4 Smith, Mason Sur. 322 (W.O.). Old T.D. 6,238 ft.; W.O.R.

Hords Creek—Goliad County

Brown & Wheeler No. 1-G Kaufman, Lot 14, Merrill Sur. D.&A. 4,605 ft.

Clark—Guadalupe County

J. E. Clark No. 1 Knodel, G. DeWitt Sur. R.U.
Diamond Halff Oil Co. No. 2 Larison, G. DeWitt Sur. Spudded.
Kenedy & Crowley No. 1 Johns, Davis Sur. T.D. 2,507 ft.; bailing.
LaJita Corp. No. 4 Denman, Arrington Sur. Cg. sh. 2,306 ft.
Ramona Oil Co. No. 2 Lay. Comp.; 300 B. P.D. est.; T.D. 2,360 ft.

Darst Creek—Guadalupe County

Diamond Halff Oil Co. No. 1 Bibbs, Robinson Sur. Top Edwards 2,852 ft.; T.D. 5,509 ft.; reworking; P.B. 1,370 ft.; D.&A.
Freeman Oil Co. No. 3 Larrison, G. DeWitt Sur. T.D. 2,700 ft.; dry; P.B. 2,450 ft.; W.O.C.
Saxet Prod. Co. No. 2 Wilson, G. DeWitt Sur. No. 13. Drlg. plugs in chalk.
V. G. Schimmel No. 1 Snyder, J. Cantu Sur. Tstg.; T.D. 2,036 ft.

Nolte—Guadalupe County

Riddle Oil Co. No. 2 Nolte, Lowell Sur. 16. Cg. 1,967 ft.

Zoboroski—Guadalupe County

Louis Crouch No. 1 King, Clements Sur. Drlg. sh. 1,923 ft.
Donan et al No. 1 State, 30-ac. tr., on bank Guad. River. Set csg. 2,159 ft.; prep. test 2,214 ft.
Felmont Oil Co. No. 1 Schueneman, G. DeWitt Sur. Cg. chlk. 2,317 ft.

Ogden & Reed No. 1 Hoffman, G. DeWitt Sur. Drlg. 2,317 ft.

Samfordyce—Hidalgo-Starr Counties

Dean Bros. No. 1-C George, 20-ac. tr., Sh. 13, Porc. 41. R.U.

Ralph E. Fair, Inc. No. 4 Flores, 30-ac. tr., Trt. 250, Porc. 38. Drlg. 1,521 ft.

Armagosa—Jim Hogg County

Tesmalis & Reese No. 1 Earhart, John Suggs Sur. T.D. 4,000 ft.; S.D.; W.O.O.

Bentonville—Jim Wells County

Camp Prod. No. 1 Bird, Sh. 7-A, Abajo Gr. Drlg. 3,919 ft.

Camp. Prod. Co. No. 2-B Pope, N½, sec. 13, King Farm Lots. M.I.M.

Texon Drlg. Co. No. 2 Ralston, 990 ft. N line, 330 ft. W line, sec. 17. R.U.

Sandia—Jim Wells County

Geo. E. Smith No. 1 Wade Ranch. Drlg. 2,417 ft.

West Premont—Jim Wells County

C. G. Glasscock No. 2 Ritter, Lot 36, sec. 76. Drlg. 2,135 ft.

Graham & Gilcrease No. 2-A Laughlin, C Lots 23 and 26, sec. 76. Recomp.; gas and dist. prod. 2,250 ft.

Graham & Gilcrease No. 4 Laughlin. Lots 94 and 99, sec. 77. R.U.

Henshaw Bros. No. 1 McGuffin, W½, sec. 230. R.U.

Smith & Storey No. 1 Buidue, Lots 5 and 12, Sec. 76. Set sur. csg.; W.O.C.

Trio Oil Co. No. 1 Thirkell, Lots 50 and 63, sec. 77. Drlg. 1,395 ft.

Weinert et al No. 2 Thirkwell, Lots 50 and 63, Sec. 77. R.U.

North Petlus—Karnes County

Magnolia Pet. Co. No. 14 Porter, Morris Sur. Sd. 3,658-66 ft.; set csg. 3,658 ft.; bailing.

Kingsville—Kleberg County

Humble O. & R. Co. No. 9 Kleberg, Lot 2, sec. 40. Sd. 3,218-28 ft.; D.S.T. rec. 210 ft. oil, 200 ft. oily mud; W.P. 54 lbs. in 24 min.; drlg. sh. 3,708 ft.

Oakville—Live Oak County

Ohio Fuel Oil Co. No. 2 Rosebrock, L. Romero Sur. T.D. 2,745 ft.; blew out; running wild, making gas from sd. at est. 2,108-12 ft.; attmptg. to shut in.

Jacob—McMullen County

Loma Oil Co. No. 6-B Jacob, Sur. 15. D.&A.

Loma Oil Co. No. 7-B Jacob, Sur. 15. R.U.

Loma Alta—McMullen County

J. T. Lanier No. 1 Hagist, SE¼, N½, Sur. 481. Drlg. 823 ft.

North Jacob—McMullen County

F. D. Salter No. 2 Griffith, Osborn Sur. Drlg. 365 ft.

South Calliham—McMullen County

D-Sel Oil Co. No. 1 Claunch, M. Hely Sur. Loc.

Snyder et al No. 1 Claunch, M. Hely Sur. T.D. 1,058 ft.; comp.; 75 B.P.D.

Agua Dulce—Nueces County

Texon Drlg. Co. No. 2-B Sevier, 880-ac. tr., W. W. Chapman Lds., Palto Alto Gr. Set 16-in. csg. 300 ft.; T.D. 6,350 ft.; set csg.; T.D. 6,465 ft.; pumping in 400 B.P.H. water to kill No. 2 wild well.

United Prod. Co. No. 1 Harvey, 1,100 ft. W line, 1,050 ft. N line, tr., M. Garza Sur. Set 5½-in. csg. 7,457 ft.; perf. csg. 7,375-84 ft.; flwg. 112 B.P.D. fluid, reported 25 to 30% oil, remainder S.W.; T.D. 9,003 ft.; cleaning on ⅛-in. ck.; T.P. 2,700 lbs.; C.P. 3,260 lbs.; to kill and rework.

Chapman Ranch—Nueces County

Seaboard Oil Corp. and Allen No. 4 Chapman, 660 ft. S line, 3,300 ft. W line, sec. 38. D.&A. 6,600 ft.

Seaboard Oil Corp. No. 5 Chapman, sec. 38, Laureles Farm Lots. Drlg. 1,127 ft.

Clara Driscoll—Nueces County

Magnolia Pet. Co. No. 3 Sevier, 80-ac. tr., Russell Sur. Set csg. 3,877 ft.; swbg. 112 B.P.D.

Flour Bluff—Nueces County

Humble O. & R. Co. et al No. 1 Downey, Lot 18, Blk. 48. Drlg. sh. 1,073 ft.

Humble O. & R. Co. et al No. 1 Dunn, Lot 6, Blk. 41. Drlg. sh. 6,577 ft.

Humble O. & R. Co. et al No. 3 Gulden, Lot 18, Blk. 47. Set csg. 6,655 ft.; comp.; 193 B.P.D. on ¼-in. ck.; T.D. 6,-663 ft.

Humble O. & R. Co. No. 5 Gulden, Lot 15, Blk. 47. Set csg. 225 ft.; W.O.C.

Humble O. & R. Co. et al No. 5-A Miller, Lot 18, Blk. 56. W.O. test; T.D. 6,655 ft.

Humble O. & R. Co. et al No. 5-B Miller, Lot 19, Blk. 48. Drlg. 2,917 ft.

Humble O. & R. Co. No. 1 Thompson, Lot 10, Blk. 55. Set csg. 6,647 ft.; flwg. in pits.

Humble O. & R. Co. No. 4 Webb, Lot 9, sec. 47. Set csg. 6,673 ft.; comp. 191 B. P.D. on ⅛-in. ck.

Humble O. & R. Co. et al No. 5 Webb, Lot 10, Blk. 56. Drlg. sh. 229 ft.

Humble O. & R. Co. et al No. 4 Webster, Lot 27, Blk. 48. Set csg. 6,660 ft.; comp.; 171.04 B.P.D. on ⅛-in. ck.; sd. 6,649-60 ft.

London—Nueces County

Atlantic Ref. Co. No. 1 Stockton, SW¼, sec. 12. Loc.

Cosner & Cosner No. 2 Stockton, 40-ac. tr., sec. 25. Sd. 4,901-07 ft.; tested mud cut with gas; set csg.; W.O.C.

Saxet Heights—Nueces County

Wm. Brady No. 1 Whelan, 56.9-ac. tr., Villareal Sur. Set sur. csg.; W.O.C.

Chireno Prod. No. 1 Hillman, 2-ac. tr., Villareal Sur. Comp. 102 B.P.D.; oil sd. 4,-065-75 ft.; T.D. 4,099 ft.

Genro Drlg. Co. No. 1 Owens, Villareal Sur. Sd. 4,049-74 ft.; set 7-in. csg. 4,074 ft.; W.O.C.

Harrison Drlg. Co. No. 1 Simms, 4-ac. tr., Villareal Sur. T.D. 4,097 ft.; P.B. and sdtrkd. 3,928 ft.; set csg. in sdtrkd. hole 4,098 ft.; stdg.

Harrison et al No. 1 Whelan, Villareal Sur. Comp.; 90 B.P.D.; sd. 4,073-78 ft.

H. H. Hoffman, Tr., No. 1 Beck, Ellendale Gardens No. 2, Lot 13. Sd. 4,080-90 ft.; set csg.; comp.; 85 B.P.D. on ¼-in. ck.

Ben F. Smith No. 1 Snowden, 13-ac. tr., Villareal Sur. R.U.

Taylor Pet. Corp. No. 2 Kaler, 10-ac. tr., Villareal Sur. Swbg. 5,146 ft.

Sam Wilson, Jr., No. 1 Koepke, Villareal Sur. Comp.; 48 B.P.D. on ¼-in. ck.

Saxet—Nueces County

Allen & Morris No. 1-B Solar Sevier, Villareal Sur. Drlg. 3,395 ft.

C. Andrade No. 9 McGregor-Belk, 130 ft. S line, 990 ft. E line, lse., Sur. 816. Drlg. 4,577 ft.

Baltic Drlg. Co. No. 5 Harmon, Sur. 416. Drlg. 4,531 ft.

R. B. Bryant No. 2 Frank, Sh. "C," Sur. 416 (W.O.). R.U.

R. B. Bryant No. 6 Frank, Sur. 416. T.D. 6,650 ft.; P.B. to sdtrk. 4,000 ft.; sd. 6,-290-6,320 ft.; set csg. at T.D. 6,385 ft.; comp.; 60 B.P.D.

Conservative Oil Co. No. 3-B Morgan, Sur. 403. Oil sd. 6,914-28 ft.; set csg. 6,928 ft.; perf. 6,750 ft.; S.W.; perf. 4,048-52 ft.; S.D.; R.U. to rework.

A. D. Corgey No. 1 Page, 330 ft. S and E lines, 20-ac. tr., Sur. 716. Sd. 6,685-6,-715 ft.; set csg. 6,715 ft.; perf. 6,249-53 ft.; comp.; 246 B.P.D.

Crown Central Pet. Corp. No. 4 Hunter, 159-ac. tr., Sur. 587. Drlg. 260 ft.

Crown Central Pet. Corp. No. 9-BB Morgan, Russell Farm Lots. T.D. sd. 4,455 ft.; comp.; 167 B.P.D. on ¼-in. ck.

Donico Prod. Co. No. 2 Donigan, 330 ft. W line, 2,004 ft. S line, 80-ac. tr., sec. 7, Rge. 6, Kinney Lds. Sd. 4,854-60 ft.; set csg.; W.O.C.

Donico Prod. Co. No. 4 Donigan, 60-ac. tr., Villareal Sur. Cg. 4,791 ft.

Foboots Pet. Co. 25-ac. tr., Stevens Tr. T.D. 3,400 ft.; D.S. stuck.

Gilcrease Oil Co. No. 3 Sullivan, 140-ac. tr., Thos. Gallagher Sur. S.D. 3,852 ft.; W.O.O.

L. Glasscock No. 2 Johns, 20-ac. tr., MacGregor Sur. 582. M.I.M.

Tom Graham No. 3 Harmon, 20-ac. tr., Sur. 416. Set csg. on sd. 6,728-39 ft.; comp.; 112 B.P.D. on ¼-in. ck.; perf. 6,734-39 ft.

Great States and Violet No. 9 McGregor-Belk, 73.6-ac. tr., sec. 311. T.D. 5,773 ft.; washing hole.

Hiawatha Oil Co. No. 7 Griffith, 100-ac. tr., Sur. 416. Drlg. 3,299 ft.

Hiawatha Oil Co. No. 8 Hutchins-Stillwell, Lot 30, Sheppard Farm Lds. Sd. 6,888-7,004 ft.; set csg. 6,786 ft.

Hiawatha Oil Co. No. 9 Hutchins-Stillwell, Lot 34, Sheppard Lds. Cg. 6,747 ft.

Hiawatha Oil Co. No. 3-B Smith, Blk. 35, Sheppard Farm Lots. Set 16-in. csg. 142 ft.; W.O.C.

Hiawatha Oil Co. No. 4-B Smith, Sheppard Farm, Lot 35. Sd. 5,822-42 ft.; comp.; 122 B.P.D.; 5/32-in. ck.

Hiawatha Oil Co. No. 5-B Smith, Blk. 35, Sheppard Farm Lots. Drlg. 5,342 ft.

Houston Oil Co. No. 9 McGregor, 135-ac. tr., Sur. 582. Drlg. sh. and L. 6,146 ft.

Houston Oil Co. No. 23 Morgan, sec. 7, Rge. 5. Drlg. plug 4,425 ft.; rng. lnr. and screen.

Houston Oil Co. No. 24 Morgan, sec. 7, Rge. 5. T.D. 4,420 ft.; S.D., high wtr.

H. H. Howell No. 4 Hutchins, 80-ac. tr., Sur. 416. T.D. 7,505 ft.; set csg. 6,798 ft.; W.O.C.

H. H. Howell No. 3 Morgan, sec. 415. Cg. 4,793 ft.

Morgan & Chapman Minerals Corp. No. 7 Morgan, NE¼, Sur. 405. Set sur. csg.; W.O.C.

Pan American Prod. Co. No. 6-D Morgan, Sur. 405. Sd. 6,898-6,908 ft.; set csg. 6,-908 ft.; drlg. plugs.

Pan American Prod. Co. No. 6-B Sagarin, 82-ac. tr., Sur. 500. Set 10-in. csg. 1,223 ft.; drlg. plugs.

Pan American Prod. Co. No. 1-A Solar Sevier, Sur. 582. Drlg. 4,381 ft.

Phillips Pet. Co. No. 1 Frank, 27.5-ac. tr., Sur. 500. Drlg. 3,611 ft.

Phillips Pet. Co. No. 5 Hutchins, Sheppard Farm, Lot 29 (W.O.). Old T.D. 6,-950 ft.; recomp.; 41 B.P.D. on ⅛-in. ck.

Port O. & G. Co. No. 3 Cox & Cryder. Sd. 3,814-28 ft.; set csg. 3,851 ft.; swbg.

Potter & Snowden No. 3 Kocurek, 26-ac. tr., Smith Sur. 25. Drlg. 2,817 ft.

Potter & Snowden No. 1 Taggert, Blk. 5, Sur. 401. Drlg. 4,547 ft.

Renwar & Maryland No. 1-A Rand Morgan, Sur. 415. O.W.W.O.; R.U. to deepen; old T.D. 5,825 ft.

Republic Nat. Gas Co. No. 19 Dunn, Blk. 37, Sheppard Farm Lots. Spudded.

Republic Nat. Gas Co. No. 2 McCampbell, 144-ac. tr. Sd. 4,272-81 ft.; comp.; 135 B.P.D. on ¼-in. ck.

Republic Nat. Gas Co. No. 3-A Morgan, sec. 405. Drlg. 1,780 ft.

Richardson Pet. Co. No. 16 Cain & Secrist, Lot 23, Russell Farm Lots. Sd. 4,444-51 ft.; comp.; 246 B.P.D. on ¼-in. ck.

Richardson Pet. Co. No. 18 Cain & Secrist, Lot 23, Russell Farm Trs. Set sur. csg. 500 ft.; W.O.C.

Richardson Pet. Co. No. 5 Sedwick, Sur. 311. Drlg. 4,457 ft.

Richardson Pet. Co. No. 8 Quiros, Blk. 36, Sheppard Farm Trs. P.B. 5,000 ft.; perf. 4,863-73 ft.; comp.; 312 B.P.D. on ¼-in. ck.

Richardson Pet. Co. No. 9 Quiros, Blk. 36, Sheppard Lots. Set 10-in. csg. 1,372 ft.

Shell Pet. Corp. No. 4 Flato, Blk. 4, Sheppard Farm Tracts. R.U.

Southern Minerals Corp. No. 20 Bliss, 120-ac. tr., Sur. 416. Sd. 6,717-28 ft.; set csg.; W.O.C.

Texon Drlg. Co. No. 6 Kocurek, Sur. 316. Sd. 4,429-38 ft.; set csg.; W.O.C.

Texon Drlg. Co. No. 6 Ocker, 200 ac. tr., Ward Surs. 402 and 316. Oil sd. 4,430-37½ ft.; set csg.; W.O.C.

Texon Drlg. Co. No. 5 Vance, Thos. Gallagher Sur. T.D. 7,000 ft.; sdtrkd. 6,-400 ft.; sd. 6,914-20 ft.; perf. csg. 6,913-17½ ft.; completing.

Sullivan—Nueces County

Lockhart et al No. 1 O. Purl, Lot 2, sec. 7, Ross Peters Subd. No. 2. Drlg. 2,-039 ft.

Midway—San Patricio County

Phillips Pet. Co. No. 1 Ivey, 990 ft. E line, 344 ft. S line, sec. K. R.U.

Plymouth—San Patricio County

Humble O. & R. Co. No. 2 Blaschke & May, Lot 8, sec. 25, Fourth Addn. Set csg. 5,652 ft.; W.O.C.

Plymouth Oil Co. No. 74-C Welder, sec. 71. Drlg. 3,520 ft.

Plymouth Oil Co. No. 75-C Welder, sec. 70. Drlg. 3,215 ft.

Taft Field—San Patricio County

Cage Prod. Co. No. 8 Mayo, Fessenden Sur. Comp.; 92 B.P.D.; sd. 4,917-29 ft.

Eaves Oil Co. No. 7 Britton, sec. 6. Cg. 4,937 ft.

Humble O. & R. Co. No. 1 Blaschke & Mayo, Lot 8, sec. 25. Drlg. sd. 6,195 ft.

Barbacoas—Starr County

K. E. Merren No. 1-A S.C.C.C., Blk. 34, Lambeth Subd., Porc. 89. Set csg. 5,353 ft.; T.D. 5,377 ft.

Cuevitas—Starr County

Sun Oil Co. No. 9-B Guerra, 330 ft. S and E lines, B lease, Cuevitas gr. Drlg. 1,226 ft.

Los Olmos—Starr County

R. A. Mitchell No. 1 Kelsey-Bass, Blk. 6, Sh. 8, Porc. 76. Oil sd. 334-36 ft.

Margo—Starr County

Dolgener et al No. 1 Garcia, 10-ac. tr., Sh. 7-B, Porc. 71. Cg. sd. 411 ft.

Ricaby—Starr County

G. E. Dodds, Tr., No. 2 Woods Est., Porc. 84. Drlg. sh. 1,717 ft.

Moss & Heard No. 2 Ricaby, Porc. 83. (W.O.). Drlg. 1,939 ft.

Rio Grande City—Starr County

Clopton & Reed No. 1 Green, Porc. 80. T.D. 4,600 ft.; S.G.; P.B. 1,681 ft.; set csg.; W.O.C.

Clopton & Reed No. 4 Tijerina, Lot 12, Sh. 14-C, Porc. 80. Cg. 1,423 ft.

Cole—Webb County

Highland Oil Co. No. 1 Bruni, Surs. 7 and 8. Cg. 3,438 ft.

O. W. Killam No. 2 Bruni, Blk. 15, Sur. 8. R.U.

O. W. Killam No. 51 Bruni. Blk. 15, Sur. 8. Sd. 3,419-26 ft.; T.D. 3,431 ft.; comp.; 12 B.P.H.

Killam—Webb County

C. H. Bailey No. 1 Garcia, Sur. 333. Sd. 2,037-40 ft.; tstg.

Hamill & Smith No. 2 Garcia, sec. 1,099. Sd. 2,000-05 ft.; W.O.C.

O. W. Killam No. 2 Garcia, Sur. 1099. R.U.

Radcliff & Killam No. 1 Garcia, Sur. 1,099. T.D. 1,099 ft.; comp.; 125 B.P.D.

O'Hern—Webb County

Hamill & Smith No. 7-A Benavides, Hale Subd. R.U.

Magnolia Pet. Co. No. 26 Benavides, Blk. 26. Drlg. plugs 2,872 ft.

Magnolia Pet. Co. No. 28 Benavides, Hale Subd. Set csg. 2,831 ft.; W.O.C.

Magnolia Pet. Co. No. 42 Benavides, Hale Subd. Sd. 3,412-17 ft.; drlg. plugs 3,-420 ft.

J. J. O'Hern No. 4-C Benavides, Blk. 24. Sd. 2,810-15 ft.; W.O.C.

H. M. Reed No. 4 Benavides, Blk. 299, Hale Subd. Swbg. 2,916 ft.

Starr Dev. Co. No. 1 Benavides, 330 ft. N and W lines, Sur. 173. M.I.M.

Sun Oil Co. No. 11-B Benavides, Blk. 444. Sd. 2,946-49 ft.; completing.

LaSal Vieja—Willacy County

Shell Pet. Corp. No. 1 Yturria, Sh. 64, Carricitos Gr. (W.O.); set csg. 7,630 ft.; cg. sh. 9,635 ft.

Byersville—Williamson County

Taylor Ref. Co. No. 8-B Heap, H. White Sur. Comp.; 50 B.P.D.; T.D. 860 ft.

Taylor Ref. Co. No. 9-B Heap, H. White Sur. R.U.

Cuellar—Zapata County

Magnolia Pet. Co. No. 4 Cuellar, Sur. 245. Sd. 1,246-55 ft.; tested 750,000 ft. gas; cg. 1,767 ft.

Escobas—Zapata County

Gilbreath Bros. No. 2 Bustamente, Sh. 10, Fansler Part. Tstg. 1,137 ft.

Matthews Drlg. Co. No. 13 Garcia, Sh. 3, Fansler Part. Drlg. 950 ft.

Nordan & Morris No. 7 Bustamente, Sh. 33, Fansler Part. Oil sd. 1,216-27 ft.; set csg.; W.O.C.

Nordan & Morris No. 8 Bustamente, Sh. 33, Fansler Part. Oil sd. 1,212-17 ft.; T. D. 1,226 ft.

Nordan & Morris No. 9 Bustamente, Sh. 33, Fansler Part. Drlg. 927 ft.

E. C. Reeves No. 1-A Bustamente, Sh. 9, Fansler Part. Oil sd. 1,162-66½ ft.; comp.; 15 B.P.D.

E. C. Reeves No. 2 Bustamente, Sh. 9, Fansler Part. Drlg. 127 ft.

Texas Co. No. 99 Jennings, Cerrito Blanco Gr. Drlg. sdy. sh. 1,302 ft.

Texas Pipe & Supply Co. No. 3 Bustamente, Sh. 9, Fansler Part. R.U.

Texas Pipe & Supply Co. No. 4 Bustamente, Sh. 9, Fansler Part. R.U.

Haynes—Zapata County

Magnolia Pet. Co. No. 4 Haynes, Blk. 5, Haynes Subd. T.D. 1,354 ft.; comp.; 4,-000,000 ft. gas.

Lopeno—Zapata County

Dalport Oil Corp. No. 1 Vela, Porc. 20. Oil sd. 2,492-96 ft.; tstg.

Martinez—Zapata County

Sylvan Price No. 1 Maryland Trust Est., Blk. 15, Sur. 314. D.&A. 3,515 ft.

E. C. TEXAS WILDCATS

Anderson County

American Liberty Oil Co. No. 1 G. E. Gauge, Blackfoot area, B. Gilbert Sur. Top Paluxy 6,758 ft.; top Glen Rose 7,029 ft.; coring 9,170 ft.

Barnsdall Oil Co. No. 1 H. C. Swanson, 330 ft. N and W of 243-ac. tr. in R. Duty Sur., 10 mi. E of Palestine. R.U.

Tide Water Oil Co. et al No. 7 Monnig, S. Sanchez Sur., deep test, Long Lake field. Coring 9,620 ft.

Angelina County

Ed Holman et al No. 1 J. E. Hawkins, 150 ft. N and E of 40-ac. tr. in Bradshaw Sur., S of Huntington. T.D. 2,085 ft.; P.B. to 1,680 ft.; tstg. 1,426-1,510 ft.

Bowie County

Ferguson & Hill No. 1 Breckenridge. Drlg. 2,700 ft.

Thompson & Jaffie No. 1 R. Rosalind, J. Milam Sur., 3 mi. SW of Redwater. S.D. 5,250 ft.

Woodley & Bently No. 1 Lumpkin. Drlg. 3,130 ft.

Cherokee County

A. F. Richardson No. 1 F. P. O'Brien, G. S. Clapp Sur., 3 mi. NW of Rusk; 5,000-ft. test. Loc.

Stoco Oil Co. et al No. 1 E. B. Parks, 6,600 ft. W line and 2,450 ft. S line of J. T. Cook Sur., 4 mi. SW of Rusk. T.D. 3,210 ft.; drlg. out plug.

Falls County

H. H. Bell et al No. 1 A. Garrett, J. M. Sanches Sur. Drlg. 800 ft.

Fannin County

Joiner-Owens No. 1 Dr. Grey, Alex Russell Sur., 4½ mi. W of Monktown. W.O.C. 173 ft.

Freestone County

C. F. Lytle No. 1 R. Simmons, 23-ac. tr., R. B. Loughbotham Sur., 1 mi. S of Wortham. Drlg. 3,850 ft.

Stroude et al No. 1 P. Mullens, R. D. Sloan Sur., 6 mi. NE of Fairfield. T.D. 341 ft.

Henderson County

Tide Water et al No. 1 McElreath & Suggett. Top Georgetown 4,990 ft.; top Paluxy 6,005 ft.; top Glenrose 6,270-80 ft.; S.D. 7,195 ft.; to shoot bit.

Tide Water Assoc. et al No. 2-C McElreath & Suggett, 467 out of SE cor. of 149-ac. lse. in W. P. Wyche Sur. M.I.M.

Hill County

A. N. Mabry No. 1 J. T. Jones, 1 mi. S of Mt. Calm, Graves Sur. S.D. 754 ft.

Hopkins County

J. Garpenter Oil Co. No. 1 Gillis, between Brashear and Cumby, W. A. Smith Sur. T.D. 105 ft.; W.O.C.

Hughes & Williams No. 1 fee, 6 mi. SE of Brashear, Agaton Caro Sur. Pecan 2,159-2,210 ft.; drlg. 2,938 ft.

Houston County

American Liberty Oil Co. No. 1 W. L. Moody, S. E. Parker Sur., 1½ mi. NW of Grapeland. T.D. 95 ft.; W.O.C.

Shell Pet. Corp. No. 1 Elliott in J. Procella Sur., 5½ mi. NE of Grapeland. T.D. 6,634 ft.; 12 bbls. fluid P.H., 99 per cent S.W.

Hunt County

Stanolind O. & G. Co. No. 1 J. P. Hawks, R. Ragsdale Sur., near Campbell. Top Woodbine 2,880 ft.; top Georgetown 3,730 ft.; top Paluxy 4,383 ft.; coring 4,450 ft.

Texola Land Corp. No. 1 J. M. Goin, Jas. Merrick Sur., 2 mi. SW of Wolfe City. S.D. 40 ft.

Kaufman County

Scott & Woodside No. 1 W. and T. Nash, in J. Cortez Sur., 1 mi. E of Scurry. S.D. 2,510 ft.

Lamar County

Blackman & McGee No. 1 J. M. Duck, 540 ft. N and 220 ft. W of 75-ac. tr., J. C. Lamb Sur., just NE of Powderly. Loc.

Limestone County

A. W. Phillips et al No. 1 E. M. Speight, M. Herrin Sur., 6½ mi. SE of Mexia. S.D. 3,695 ft.

Pure Oil Co. No. 16-T Kendrick, P. Varella Sur., Mexia field. S.D. 2,978 ft.

Red River County

Roy I. Carter Drlg. Co. No. 1 J. A. Tutt, C 40-ac. tr. in D. Hart Sur., 2 mi. S of Avery. S.D. 410 ft.

Rusk County

J. G. Mayo No. 1 S. C. Sanford, W. A. Corder Sur., 10 mi. E of Mt. Enterprise. Loc.

J. Merrick et al No. 1 Tipps, T. Uzzell Sur. 6 mi. S of East Texas field. S.D. 110 ft.; W.O.C.

Van Zandt County

Glenn et al No. 1 E. Core, 2,700 ft. W and 2,500 S. of tr., and H. Ball Sur., 3 mi. N of Edom. Loc.

Humble O. & R. Co. No. 1 L. K. Riggs, W. Daniels Sur. Skidded 100 ft. S.; drk.

EAST TEXAS

(Border Counties)

Cass County

American Liberty No. 1 B. E. Echlos, H Holbert Sur. Comp.; flw. 227 B.P.D.; T.D. 6,071 ft.

Arkansas-Louisiana No. 1 George, W. R. Myers Sur. 7-in. cmt. 5,943 ft.; T.D. 5,980 ft.; W.O.C.S.

Gulf Prod. Co. No. 1 W. T. Henry, H. Owens Sur., NW cor. survey. Drk.

P. L. Hoffman No. 3 Davis, J. S. Smith Sur. Comp.; flow 480 B.P.D.; T.D. 6,010 ft.

Magnolia Pet. No. 3 W. M. Hall, Wilson Robinson Sur. Drk.

Magnolia Pet. No. 4 W. M. Hall, John N. Jackson Sur. Drlg. 2,000 ft.

Magnolia Pet. No. 5 W. M. Hall, John N. Jackson Sur. Drlg. 1,400 ft.

Magnolia No. 1 Hayer & Thatcher, Jaco Carsner Sur. P.B. to 5,965 ft.; tstg. and acid.

Magnolia Pet. No. 14 L. Haywood, P. Evans Sur. Drlg. 6,000 ft.

Magnolia Pet. No. 15 L. Haywood, P. Evans Sur. Drlg. 5,998 ft.

Magnolia Pet. No. 16 L. Haywood, P. Evans Sur. Drlg. 900 ft.

Magnolia Pet. No. 17 L. Haywood, P. Evans Sur. Drlg. 5,970 ft.

Magnolia Pet. Co. No. 18 L. Haywood, P. Evans Sur. Drlg. 253 ft.

Magnolia Pet. Co. No. 19 L. Haywood, P. Evans Sur. 16-in. cmt. 252 ft.; W.O.C.S.

Magnolia Pet. Co. No. 20 L. Haywood, P. Evans Sur. M.I.M.

Magnolia Pet. Co. No. 21, L. Haywood, P. Evans Sur. M.I.M.

Magnolia Pet. Co. No. 22 L. Haywood, P. Evans Sur. 16-in. cmt. 253 ft.; W.O.C.S.

R. W. Norton No. 5 Davis, H. Holbert Sur. Drk.

R. W. Norton No. 1 L. E. Hardin, Dudley Gilleans Sur. 13-in. cmt. 252 ft.; W.O. C.S.

R. W. Norton No. 6 Davis, H. Holbert Sur. Drlg. 5,827 ft.

R. W. Norton No. 7 Davis, H. Holbert Sur. Comp.; flow 538 B.P.D.; T.D. 6,051 ft.

Ohio Oil Co No. 13 R. P. Willis, S.F.I.W. Sur. No. 1263. Drlg. 4,680 ft.

J. G. Puterbaugh et al No. 1 Doorley, Calloway Davis Sur., 14 mi. N of Rodessa. Drlg. 5,460 ft.

W. G. Ray Drlg. Co. No. 1 Parker, G. Crowder Sur. M.I.M.

Texas Co. No. 1 Chatten, Wm. R. Myers Sur. Drlg. 4,259 ft.

Texas Co. No. 8 McLeod, W. A. Elliott Sur. Tstg.; T.D. 6,111 ft.

N. K. Towns No. 1 Henry, H. Owens Sur. NW cor. sur. Drk.

United Gas No. 3-A J. A. Bewley, H. Holbert Sur. Comp.; flow 16 B.P.H.; T.D. 5,990 ft.

United Gas No. 2 V. C. Bivens, J. Collom Sur. M.I.M.

United Gas No. 1 Threwer, J. S. Smith Sur. M.I.M.

United Prod. No. 2 Allday, 87 ac. trk. Drk.

United Prod. No. 6 Baugus Unit, R. Trammel Sur. Drlg. 5,740 ft.

United Prod. No. 1 Belote, H. Holbert Sur Comp.; flow 22 B.P.H.; T.D. 6,000 ft.

United Prod. No. 2 Belote, H. Holbert Sur. 13-in. cmt. 262 ft.; W.O.C.S.

United Prod. No. 2 J. Q. Clements, Wm B. Hughes Sur. Drlg. 5,960 ft.

United Prod. No. 2 J. S. Hall, Wm. Robinson Sur. Comp.; flow 10 B.P.H.; T.D. 6,039 ft.

United Prod. No. 3 J. S. Hall, Wm. Robinson Sur. Comp.; flow 11 B.P.H.; T.D. 6,040 ft.

United Prod. No. 1 W. W. Herner, J. S. Smith Sur., on 14-ac. tr. Drlg. 955 ft.

United Prod. Co. No. 1 Kate, Spell Unit C. C. Sch. Ld. T.D. 5,640 ft.; wt. for gauge.

United Prod. Co. No. 1 J. W. Land, R. Potter Sur. Cg. 7,165 ft.

United Prod. No. 1 M. R. Lennard, J. S. Smith Sur., on 17-ac. tr. Drlg. 300 ft.

Harrison County

Gever Oil Co. No. 2-B Vincent, Davenport Sur. T.D. 2,135 ft.; R.U. to D.D.

Marion County—Rodessa

Arkansas-Louisiana No. 1 C. C. Braden T. Hanson Sur. Drlg. 4,624 ft.

Arkansas-La. No. 1 Laura McIntosh, Edmondson Sur. Drlg. 6,846 ft.

Hunter Co. No. 1 E. W. Fonda, A. D. S. Coy Sur. T.D. 6,094 ft.; tstg.

Panola County

Danciger O. & R. No. 1 Tatum, A. Bissell Sur. Spudded and S.D.

R. H. Dearing & Sons No. 1 Wooten Est., W. Mann Sur. Set surf. pipe.

Glassell & Glassell No. 1 Pierce & Chesbro, Julia Soape Sur. M.I.M.

Magnolia Pet. Co. No. 2 E. A. Hull, Thos. Applewhite Sur. Drlg. 5,800 ft.

Shelby County

Wm. Redditt No. 1 Pickering Lbr. Co., SE cor. Stephens English Sur. S.D. 2,165 ft.; laying fuel line and prep. to D.D.

H. A. Stebbinger No. 1 Pickering Lbr. Co., on 160-ac. tr. in A. Hanson Sur. T.D. 5,110 ft.; 7-in. set 5,050 ft.; prep. test. T.D. 5,126 ft.; tstg. S.W.; S.D.

WEST TEXAS WILDCATS

Andrews County

W. G. Blanchard et al No. 1 Cox, C SW sec. 4, Blk. A-30, P.S.L. Sur. Loc.

M. S. Forgeron et al No. 1 Lockhart & Brown, C NE¼ sec. 20, Blk. A-41, P.S.L. Sur. R.U.

Sinclair Prairie Oil Co. No. 1 Emma Cowden, sec. 11, Blk. 44, Twp. 2n, T.&P. Sur. Drlg. 367 ft.

G. F. Getty, Inc., No. 1 R. H. Lindley, sec. 8, Blk. A-46. T.D. 4,902 ft.; P.B. to 4,690 ft.; to put on pump.

Hargrove et al No. 1 Riordan, NW¼, sec. 10, Blk. A-44, P.S.L. Sur. Drlg. 1,762 ft.

Landreth Prod. Co. No. 1 L. Jones, sec. 11, Blk. A-42, P.S.L. Sur. Drlg. 2,600 ft.

Standard of Texas No. 1 Gray Estate, sec. 21, Blk. A-42, P.S.L. Sur. Drlg. 4,412 ft.

Bailey County

E. L. Wilson et al No. 1 Yellow House Land Co., Labour 4, Abner Taylor League 700. Drlg. 2,402 ft.; elev. 3,687 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. S.D. 4,026 ft

Storey No. 1 Wilson, sec. 3, Blk. 212, T.& St.L. Sur. Drlg. 2,200 ft.

Cochran County

Bond & Harrison No. 1 Cameron, Labour 1, League 85, Greer Co. School Lands. S.D. 4,515 ft.

Pete Wiggins et al No. 1 C. Slaughter Dean, C Lab. 26, League 92, Lipscomb Co. School Ld. Loc.

Coke County

H. E. Ogden et al No. 1 Rawlins. T.D. 515 ft.; U.R. csg.

Plymouth Oil Co. No. 1 Mrs. Mary Hanna, sec. 252, Blk. LA, H.&T.C. Sur., 1½ mi. SW of Blackwell. Drlg. 2,025 ft.

Crane County

Gulf Oil Corp. No. 2 McKnight, sec. 9, Blk. B-21. Drlg. 4,900 ft.

Sinclair Prairie Oil Co. No. 1 University, sec. 13, Blk. 35. T.D. 3,615 ft.; P.B. to 3,598 ft.; tstg.

Crockett County

Superior Oil Co. of Calif. No. 1 J. S. Todd, C SE¼ sec. 55, Blk. UV, G.C.&S.F. Sur. Drlg. 4,606 ft.

Dawson County

E. L. Wilson No. 1 Scanlon. Loc.

E. L. Wilson et al No. 1 Texas Ld. & Mtg. Co., sec. 45, Blk. M, E.L.&R.R. Sur. Drlg. 3,972 ft.

Edwards County

Dan Auld et al No. 1 Rigsby, sec. 16, Blk. OK, G.C.&S.F. Sur., 15 mi. NE of Rock Springs. S.D. 3,040 ft.

El Paso County

Tri-State Oil Co. No. 1 Kinkel. Drlg. 2,824 ft.

Ector County

Shasta Oil Co. No. 1 K. Sands, 440 ft. N and E, sec. 32, Blk. 44, T.&P. Sur. Loc.

Fisher County

L. A. Daniels et al No. 1 J. J. Nickless. Drlg. 3,051 ft.

Martin & Brubaker No. 1 Brown, W. E. Richardson Sur., sec. 4, Blk. R. T.P. 3,192 ft.; S.D. 3,194 ft.; 1½ bailers oil per hour.

Southern Oil Co. No. 1 Robinson, sec. 172, Blk. 2, H.&T.C. Sur., 2½ mi. NE of Raton. S.D. 3,317 ft.

Gaines County

Amerada Pet. Corp. No. 1 A. Faskin, 660 ft. N and W of SE¼ sec. 160, Blk. G, W.T.R.R. Sur. Cellar.

A. G. Carter No. 1 A. L. Wasson et al, sec. 48, Blk. AX, P.S.L. Sur. Drlg. 3,834 ft.

A. G. Carter et al No. 1 Moore-Langdon, sec. 44, Blk. AX, P.S.L. Sur. Spdg.

Continental O. Co. No. 1 Jones, sec. 22, Blk. A-7, P.S.L. Sur. Loc.

T. N. Sloan et al No. 1 Barber, NE cor. sec. 19, Blk. A-28, P.S.L. Sur. Drlg. 973 ft.

Wentz Oil Co. No. 1 Dalmont, sec. 5, Blk. A-22, P.S.L. Sur. Drlg. 4,412 ft.

Garza County

S. Caprito No. 1 Post Estate, sec. 230, Blk. 5, K. Aycock Sur. Drlg. 3,175 ft.

Hockley County

R. F. Duggan et al No. 1 Yellow House Land Co., cen. Labour 11, League 718. State Capitol Lds. Loc.

Howard County

Moore Bros. No. 1 T.&P. Land Trust, sec. 33,Blk. 20, Twp. 1s, T.&P. Sur. Drlg. 2,892 ft.

Shasta Oil Co. No. 1 Cora Echols, sec. 5. Blk. 15, T.&P. Sur. T.D. 2,645 ft.; to acidize.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thawton, SE¼ sec. 34, Blk. 74, Twp. 6. T.D. 3,040 ft.; reaming.

Loving County

Barnett Pet. Co. No. 1 Johnson, 990 ft. S and 330 ft. E, sec. 2, Blk. 57, T-1, T.&P. Sur. Loc.

Barnett Pet. Corp. No. 1 W. D. Johnson, sec. 12, Blk. 56, Twp. 1, T.&P. Sur. M.I.M.

Finley et al No. 1 W. D. Johnson, sec. 24, Blk. 56, Twp. 1, T.&P. Sur. Drlg. 1,782 ft.

Stanolind O. & G. Co. No. 1 M. Kyle, sec. 20, Blk. 55, Twp. 1, T.&P. Sur. T.D. 3,907 ft.; top sd. 3,870 ft.; oil and wtr.

Woodley Pet. Co. No. 1 Klon, sec. 21, Blk. 55, Twp. 1, T.&P. Sur. M.I.M.

Mitchell County

Grisham-Hunter Corp. No. 1 Morrison, 328 ft. N and W, sec. 34-29-1n, T.&P. Sur. Loc.

Mitchell O. & G. Co. No. 1 Z. Morrison, sec. 36, Blk. 29, Twp. 1n, T.&P. Sur. Drlg. 1,466 ft.

Pecos County

Adams & Black No. 1 Masterson, sec. 71, Blk. 10, H.&G.N. Sur. Drlg. 1,701 ft.

Cannon & Cannon No. 1 University, sec. 2, Blk. 20. Drlg. 440 ft.

Dobbs No. 1 University, sec. 30, Blk. 18. T.D. 305 ft.

Humble O. & R. Co. No. 1 E. M. Gray, sec. 94, Blk 11, G.H.&S.A. Sur.; 5,000-ft. test. Drlg. 3,800 ft.

K. Kimberlin No. 1 Humble-Young, sec 49, Blk. 10, H.&G.N. Sur. Drlg. 408 ft.

E. R. Minshall No. 1 Banker, sec. 25, Blk. 146, T.&St.L. Sur. T.D. 3,005 ft.; P.B. to 2,974 ft.

W. Y. Penn No. 1 Tipton, sec. 85, Blk. 8, H.&G.N. Sur. Loc.

S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. T.D. 4,910 ft.

Trans-Pecos Oil Co. No. 1 Gallagher, sec 9-51-10, T.&P. Sur. S.D. 1,475 ft.

Trans-Pecos O. Co. No. 1 Popham. Drlg 453 ft.

Young No. 1 Perry, sec. 3, Blk. Z, T.C. R.R. Sur. S.D. 955 ft.

Pecos County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk. 12, G.H.&S.A. Sur. No report.

A. H. Main No. 1 Greenlee, sec. 40. Blk. 347, 13 mi. NE of Marfa. No report.

Reagan County

Bahan & Rhodes No. 1 Kloh, sec. 37, Blk 37, Twp. 5s, T.&P. Sur., NW cor. of county. S.D. 3,625 ft.

O. B. Greathouse et al No. 1 W. E. Friend, SW cor. sec. 3, Wm. Allen Sur. S.D. 20 ft.

Moore Bros. No. 1 University, 1,980 ft. N and E, sec. 8, Blk. 7. Loc.

Reeves County

Grisham & Hunter No. 1 Montgomery, sec. 1, W. R. King Sur. T.D. 4,065 ft.; P.B.

Runnels County

K Z Oil Co. No. 1 B. Fletcher, E. C. Good Sur. R.U.R.

Price & Kramer No. 1 Giesecke, Blk. 227. Hughes Sur. Drlg. 1,040 ft.

Stevens & Glover No. 1 Fowler, sec. 150, E.T.R.R. Sur., 2 mi. NE of Ballinger. S.D. 200 ft.

Schleicher County

J. M. Cooper No. 2 B. Page, sec. 40, Blk. L, G.H.&S.A. Sur. Drlg. 1,000 ft.

Tex.Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B. Sur. M.I.M.

Scurry County

Bristow & Cantrell No. 1 Tomlinson, sec 122, Blk. 97, H.&T.C. Sur. Drlg. 2,790 ft.

E. L. Goos No. 1 Henderson, sec. 148, Blk. 97, H.&T.C. Sur. Drlg. 1,827 ft.

C. W. Guthrie et al No. 1 F. W. Hardee, 330 ft. N and W, sec. 99, Blk. 97, H.& T.C. Sur. Loc.

Terry County

Crump & Corrigan No. 1 Lewright, 660 ft. NE, sec. 1, Blk. C-37, P.S.L. Sur. T.D. 5,133 ft.; to test.

R. L. Foree No. 1 A. E. Pool, 1,320 ft. N and E, sec. 54, Blk. D-11, D.&S.E. Sur. Loc.

Ward County

F. H. Murphy et al No. 1 Monroe, 1,320 ft. NW and NE, sec. 210, Blk. 34, H.& T.C. Sur. Loc.

Magnolia Pet. Co. No. 1-55 Sealy, sec. 55, Blk. F, G.M.M.B.&A. Sur. T.D. 3,010 ft.; P.B. to 2,985 ft.; W.O.C.

L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. Top Del. L. 4,635 ft.; top Del. sd. 4,670 ft.; S.O. 4,690 ft.; T.D. 4,700 ft.; P.B. 4,698 ft.; shot; flowing.

Winkler County

Dunnigan Bros. et al No. 1 Sealy. S.D. 2,958 ft.

Yoakum County

Bahan et al No. 1 Shook Est., sec. 420, Blk. D, John H. Gibson Sur. Drlg 3,567 ft.

Magnolia Pet. Co. No. 1 Mrs. M. E. Taylor, sec. 201, Blk. D, John H. Gibson Sur. Elev. 3,607 ft.; top Yates 3,040 ft.; T.D 4,024 ft.; W.O.C.

Moore Bros. No. 1 Cleveland, sec. 706, Blk. D, J. H. Gibson Sur. Loc.

NORTH TEXAS WILDCATS

Archer County

O. P. Darsey No. 1 J. T. Longley, sec. 1839, T.E.&L. Sur. Drlg. 710 ft.

S. & H. Drlg. Co. No. 1 C. A. Mangold, C. Wright Sur. Loc.

H. M. Tebay No. 1 Richardson, J. Scott Sur. T.D. 1,240 ft.; to shoot and acidize.

Clay County

L. T. Burns No. 1 Sanzenbacker, L. N. Sparks Sur. A-401. Drlg. 2,400 ft.

Foster Minerals Corp. No. 1 V. H. Yarbrough M. Lassiter Sur. A-288. Drlg. 895 ft.

Walter H. Gant No. 3 C. M. Worsham, H. &T.C. Sur., Blk. 4. Reaming 3,900 ft.

Green Mt. Oil Co. No. 1 Staggs, sec. 34, A.C.S.L. Sur. S.D.O. 3,295 ft.

Cooke County

Denver P. & R. Co. No. 1 Solomon, W. G. Hunt Sur. A-493. Drlg. 1,800 ft.

V. E. Powell No. 1 D. B. Allred, G. DeLos Santos Sur. A-894. R.U.R.

Sparks & Russell No. 1 C. F. Bundy, P. P. Cary Sur. A-1239. Coring sand 2,090-2,102 ft.

Texas Co. No. 1 J. F. Marshall, A. Burns Sur. A-49. Drlg. 1,030 ft.

Denton County

Bolivar Drlg. Co. No. 1 Bentley, J. Yoakum Sur. A-1443. Core S.S.O. 1,698-1,705 ft.; test show oil; S.D.O. 2,017 ft.

California Ref. Co. No. 1 W. & S. Life Ins. Co., B.B.B.&C. Sur. A-783. Drlg. 708 ft.

Geo. Greer No. 1 Ross, J. P. Melton Sur. A-802. Coring 2,260-65 ft., lime.

Oil Finance No. 1 J. S. Gambill. Drlg. 2,130 ft.

Regan & Davis No. 1 Williams, M.E.P.&P. Sur. A-927. Cem. surf. pipe and W.O.C.

Grayson County

North Texas Oil Co. No. 1 A. M. Smith, R. M. Williamson Sur. A-1300. S.D.O. 370 ft.

Jack County

Cockburn & Harper No. 1 Clayton, W. H. Smith Sur. A-540. Drlg. 1,100 ft.

F. S. Freeland No. 1 R. E. Graves, S. Hazel Sur. A-258. R.U.C.T.

H. M. Leidecker No. 1 J. W. Padgett, E. Allbritton Sur. A-1890. U.R. 6⅝-in. csg. 2,700 ft.

H. B. Madden No. 1 J. L. Mask, sec. 2708, T.E.&L. Sur. S.D. 1,300 ft.; water.

H. S. Moss No. 1 Bloodworth, G. Thompson Sur. A-612. Drlg. 3,015 ft.

Panhandle Ref. Co. No. 1 M. K. Graham, I. Hughson Sur. A-286. Drlg. 2,300 ft.

Tebay & Leberman No. 1 S. E. and E. W. Rankin, J. P. Thompson Sur. Spud and S.D.

R. A. Westbrook No. 1 Worthington-Knox, B.B.B.&C. Sur. A-185. Drlg. 700 ft.; H.F.W.

Montague County

Benton & Holmes No. 4 Reed A, T. Robinson Sur. O.W.D.D.; B.O.S. 2,320-28 ft.; set 5-in. csg.; W.O.C.

Moss Holmes No. 1 I. N. Monroe, F. Secrest Sur. A-665. Drlg. 1,200 ft.

Lesh & McCall No. 1 Dodson, T. R. Jackson Sur. A-394. Spudded.

Montague Oil Co., Inc., No. 1 W. J. Bell, sec. 2,882, T.E.&L. Sur. Fsg. csg.; T.D. 4,210 ft.; 8¼-in. 3,904 ft. collapsed; rec. 8¼-in. with 1,400 sacks cement after reaming out collapsed pipe.

Selby O. & G. Co. No. 1 J. M. Batts, M. B. Tatum Sur. A-740. Drlg. 4,825 ft.

J. W. Sorrell et al No. 1 J. E. Walthall, S. H. Smith Sur. A-662. Spudding.

Ventex Investments, Ltd., No. 1 S. E. Bell, sec. 11, M.E.P.&P. Sur. S.D., boiler blew up.

Wichita County

Christie et al No. 1 Vanmeter, Blk. 35, K.W.V.F.L. Sur. Drlg. 3,100 ft.

Leo Oil Co. No. 1 Fonville, sec. 323, Waggoner Co. Sur. Drlg. 1,906 ft.

Wilbarger County

King Oil Co. No. 1 Waggoner V, sec. 107, H.&T.C. Sur. Spudding.

F. A. Lain No. 1 J. Coffee, sec. 44, H.&T.C. Sur. T.D. 3,602 ft.; C.O. old hole.

L. Webb No. 1 Waggoner, sec. 49, H.&T. C. Sur., Blk 2. L.S.O. 2,406-28 ft.; tested wtr.; S.D.O.; recmtg. csg.

Wise County

Latex Oil Co. No. 1 C. R. Smith, J. Couch Sur. A-104. Drlg. 2,165 ft.

Young County

Ambrose & Meyers No. 1 Brogden, T. C. Wadley Sur. A-2309. Loc.

F. W. Bennett No. 1 T. E. Mathews, I. Hughson Sur. A-2162. Drlg. 3,030 ft.

F. W. Bennett No. 1 R. V. Tidwell, J. L. Blackwood Sur. A-1,378. Drlg. 1,000 ft.

Collins & Fitzwater No. 1 J. G. Castleman, sec. 72, T.E.&L. Sur. S.D.O. 1,002 ft.

H. J. Cox No. 1 W. T. Donnell, J. M. Smith Sur., sec. 1-7-1879. S.D. 1,800 ft.

C. A. Lupton et al No. 1 Hall, B. R. Aiken Sur. A-2241. W.S. 4,240-50 ft.; S.D.

Pitzer & West & Lion No. 1 Mrs. F. Wray, T.E.&L. Sur. 3411. Drlg. 4,200 ft.

T. G. Shaw Oil Corp. No. 1 J. L. McLaren, sec. 6, B.B.B.&C. Sur. 9-29. Drlg. 1,960 ft.

Yorktex Pet. Co. No. 1 W. E. Steele, I.R.R. Sur. A-156. Drlg. 2,050 ft.

H. Zweifel No. 1 E. S. Graham, B.S.&F. Sur. A-44. R.U.C.T.

H. Zweifel No. 1 R. D. Sewell, M. Case Sur. A-1402. Drlg. 2,090 ft.

RANGER (CENTRAL TEXAS) DISTRICT

Callahan County

Charlie Hobbs et al No. 1 Mike Hughes, sec. 47, D.&D.A. Sur. Drlg. 145 ft.

Mesa Verde Oil Co. No. 1 Klepper, 4 mi. N of Clyde, sec. 69, B.B.B.&C. Sur. Drlg. 1,125 ft.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. I. Terry, Desdemona pool, N. H. Kuykendall Sur. R.U.

Eastland County

J. T. Anderson No. 1 Crist, 8 mi. N of Rising Star, sec. 36. Lavaca Co. Sch. Lds. U.R. 6⅝-in. 2,155 ft.

F. J. Estes No. 1 Gentry, A. Popejoy Sur. S.D. 3,000 ft.

Barrett & Moon No. 1 Foote, 4 mi. NE

(Continued on Page 184)

PERSONAL

JOHN C. BURNE, formerly of New York, has returned to that city as assistant manager of the New York division of the Colonial Beacon Oil Company, with offices at 30 Rockefeller Plaza. Mr. Burne was born in Huntington, N. Y., and began his business career in New York with the Standard Oil Company of New Jersey in 1920. He served that company in several capacities in its Baltimore division, and was sales manager of the West Virginia division of the Standard of New Jersey.

J. D. McCAMEY, safety engineer for Carter Oil Company of Tulsa, is on a trip in Kansas.

W. H. WOMACK of Shreveport, La., won the Texas small bore championship at Fort Worth, Tex., when the Fort Worth Rifle and Pistol Club held a meet.

E. A. SMITH, superintendent of the Canadian Oil Companies, Ltd., refinery, has been elected president of the newly organized Business and Professional Men's Association of Petrolia, Ontario.

J. EDGAR PEW, vice president of the Sun Oil Company, visited the Buckeye, Michigan, field last week. The Sun Oil Company is heavily interested in that newest and perhaps largest of Michigan fields, and has field headquarters in Saginaw.

C. H. LIEB, president; L. F. McCOLLUM, head of the exploration department, and F. W. FLOYD, general superintendent, of the Carter Oil Company, have been on a trip to the New York office of the Standard Oil Company of New Jersey on company business.

GEORGE BROCKWAY, former Traverse City, Mich., bulk plant manager for the Standard Oil Company (Indiana), recently has been promoted to station instructor with headquarters at Grand Rapids, west Michigan district offices. He has been succeeded at Traverse City by KENNETH DEAN.

D. J. HARMON, district superintendent for the Stanolind Oil & Gas Company in East Texas, is on a leave of absence and IRA PAGE, his assistant, is taking his place. J. E. WOOTEN, petroleum engineer for the company at Fort Worth, Tex., has been temporarily transferred to the district to fill Mr. Page's place.

JACK FAIRBURN, manager for Imperial Oil, Ltd., at Waterways, Alberta, returned recently from Edmonton.

WILLIAM C. (BILL) McDUFFIE, chairman of the executive committee of Richfield Oil Corporation, who recently completed six hard years as receiver of Richfield Oil Company, is taking a well-earned vacation.

J. J. MURRAY, marine superintendent of Tide Water Associated Oil Company, has been elected president of the Bilge Club comprising executives of shipping interests at Los Angeles Harbor. JACK W. MALSEED, former president of the club and marine superintendent of Shell Oil Company, and A. R. PEGG, marine superintendent of Union Oil Company, were reelected to the board of directors of the club.

GUY E. CHAPMAN, former Standard of Indiana geologist with the Stanolind Oil & Gas and Dixie Oil companies, and now vice president of the Devonian Oil Company, operator in the Clayton-Arenac field of Central Michigan, recently entertained Michigan scouts for a week-end at Grayling, Mich.

JOHN L. ROBINSON, vice president and general manager of the West Michigan Consumers Company, Muskegon, Mich., operator of an industrial gas system in Muskegon and recent developer of the Ravenna Township, Muskegon County, Berea gas field, and MRS. ROBINSON, left last week on a month's vacation by automobile to Washington and thence through the South and Southwest.

MAX PRAY, vice president and general manager of the Sweet Oil Refining Company, of Wyman, Mich., has resigned to devote his time to leasing and drilling, though he will continue a director of the company under which he was instrumental in founding the Central Michigan plant three years ago. R. C. WILBUR, who recently came to Sweet Oil company as assistant to Mr. Pray, is the new vice president and general manager.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

A large number of inquiries were being received as to the probable life of Oklahoma wells, but it was declared there was no fear that the bottom would drop out of the field.

Kansas-Oklahoma oil was advanced 2 cents to 68 cents with predictions it would reach 75 cents a barrel by July 4.

At the natural gas convention in Kansas City the research committee presented a report on liquefying gas. Some believed it would be feasible to ship the gas in containers while others were reported skeptical.

20 YEARS AGO

Pennsylvania producers were protesting against a proposal to impose a 2 per cent tax on crude oil produced in the state.

Eureka, Kans., boasted of being the livliest oil town in the world, with 25 wildcats drilling in the neighborhood.

There was an exodus of oil field workers from West Virginia and northwestern Pennsylvania to the new oil-producing regions in Kentucky.

In Mexico it was reported they were watching out for spies in the Tampico oil region.

10 YEARS AGO

Secretary of the Interior Work, chairman of the Federal Oil Conservation Board, assured oil men that "the present plight of the industry" is thoroughly understood and that the government will render every proper assistance to the industry in remedying the situation.

Wildcats south of Bowlegs, Okla., were making that section the most active in the Seminole field.

What was described as the wildest wildcat in Winkler County, a couple of miles from the New Mexico border, found 600 barrels of 38-gravity crude free from sulfur.

A. V. JONES, independent operator of Albany, Tex., is recovering after a serious illness of several weeks.

R. E. NELSON, land man for the Stanolind Oil & Gas Company, has been transferred from Houston, Tex., to Amarillo, Tex.

WILLIAM HOST, of the J. C. Arthurs Drilling Company, Mount Pleasant, Mich., recently visited friends in Ohio and Illinois.

NEVILLE M. CLARKE from the St. Louis, Mo., office of Shell Petroleum Corporation was in Tulsa during the past week on company business.

J. H. KELSEY, land man, and M. B. LARSH, geologist, with the Sinclair Prairie Oil Company at Midland, Tex., were visitors at the company's Tulsa offices the past week.

J. W. HUGHES, general manager, and HARRY E. BRYANT, western manager of the Kendall Refining Company of Canada, Ltd., while in Edmonton, Alberta, recently entertained 45 representatives of automotive firms at the Macdonald Hotel.

THOMAS B. SCOTT has resigned from his position of executive assistant to the management of the Carter Oil Company and has left for a short trip to New York. According to his plans he will remain in Tulsa to engage in the oil business as an independent operator.

O. E. BERG, district sales manager of the Babcock & Wilcox Tube Company, Houston, Tex., addressed the technical group of the Arkansas-Louisiana-Texas division of Western Petroleum Refiners Association in Shreveport, La., on May 14, subject, "Intermediate Alloys for Still Tubes."

PARAGRAPHS

J. W. STEELE, chairman of the Federal Tender Board No. 1 at Kilgore, Tex., has returned after attending hearing in Washington, D. C., before the Cole subcommittee which heard evidence concerning the extension of the Connally act.

JOE E. HEMPHILL, scout for Magnolia Petroleum Company, has been transferred from Lake Charles, La., to the New Orleans office to join J. A. SELBY, land man in charge of all development work east of the Mississippi River.

JOHN M. CRAWFORD, chairman of the board, and DAVID B. CRAWFORD, president of the Parkersburg Rig & Reel Company, were recently presented with handsome silver loving cups by the employes of the company in commemoration of the fortieth anniversay of its founding. Each cup bore the sentiment "We rejoice that we can of our own free will love him whom it is our duty to respect." The Crawford brothers are among the most popular and highly respected men in the supply business, an industry in which they have spent all their working lives. In their home city, Parkersburg, W. Va., they have long been leaders in civic and philanthropic work.

G. H. BELL, veteran oil scout for the Pure Oil Company, recently joined the Smith Petroleum Company in a similar capacity with headquarters at Saginaw, Mich.

WILLIAM WALLACE MEIN was elected president of the Bishop Oil Corporation at its recent annual meeting; LOUIS J. BRUNEL, vice president and general manager; J. TEDESCO, secretary- treasurer, and E. J. VALENCIA, assistant secretary-treasurer.

A. L. WEIL, president of General Petroleum Corporation, California subsidiary of Socony-Vacuum Oil Company, and ARTHUR WOLL, director and marine engineer, were hosts to approximately 200 shipping and petroleum executives at a luncheon and reception on the arrival recently at Los Angeles Harbor of the company's new tanker Mobiloil.

E. W. BECK, of Los Angeles, Calif., has been appointed manager of purchases of General Petroleum Corporation succeeding ROBERT M. KETCHUM who recently passed way. Mr. Beck has been with General Petroleum Corporation since March, 1923, when he began as clerk in the stores department at Vernon. In 1926, he was transferred to the main office of the purchasing department in Los Angeles as assistant price clerk and was successively promoted to the post of buyer and assistant manager.

E. R. BANNATYNE has been elected president of Alberta Foothills Royalties, Ltd., Calgary, Alberta.

W. R. FINNEY, president of Oklahoma Pipe Line Company, was in New York City on business the past week.

H. SMITH CLARK, of Fort Worth, Tex., chief geologist in Texas for Sinclair Prairie Oil Company, was a recent business in Tulsa.

F. A. BILLSTONE, treasurer of Ohio Oil Company, of Findlay, Ohio, has been transacting business at the Tulsa offices of the company for several days.

D. D. WILLIAMSON, formerly head of the Texas state highway laboratories, has been placed in charge of the field office of the Asphalt Institute opened in Dallas, Tex.

HUGH McCLELLAN, consulting geologist of Wichita, Kans., was a recent visitor in Tulsa. He formerly was with the Burke-Greis Oil Company in Oklahoma City, Okla.

OSCAR ALSTERBERG, CARL BLESSING, HENRY BECK, ALBERT CHARLES, HERBERT DENT, NORMAN ELLIS, ROBERT FRENCH, KENNETH FREEMAN, MILLER GRIGGS, NORMAN HANKS, MAX KNORR, KARL LINDEMUTH, CLAUDE MUNN, FRANK REEVES, CURTISS SHOWERS, THEODORE STEIFEL, JACK LYNCH, TOM McCARTHY and CLAIR BALDWIN received diplomas in Bradford, Pa., recently, marking the completion of a three-year extension course in petroleum and natural gas engineering. PROF. HARRY NORTHRUP, director of the mineral industries division extension school of Pennsylvania State College, presented the "sheep skins" to the young men.

Knows, for He's Done It

S. W. Day, of Shreveport, who was elected vice president of the Standard Oil Company of Louisiana, in charge of the pipe line department, at the recent meeting of the company's board of directors, knows the work of that division from top to bottom, for he personally has performed virtually every type of task in pipe line operation. He succeeds F. Ray McGrew, who retired May 1 after 33 years with the company. Mr. Day was elected also to the board of directors.

S. W. DAY

The new vice president in charge of the pipe line department started with the Louisiana company in 1905, as a common laborer, after having had some experience in the Pennsylvania fields. His rise was steady, and promotions carried him from one position to another till he reached high executive posts. After serving as connection foreman he was made district foreman in the Caddo field and later in the Bull Bayou field. Next he was made superintendent of the pipe line gathering system. In 1923 when the Standard Pipe Line Company of Louisiana was formed, F. Ray McGrew was named president and Mr. Day vice president. When the pipe line company was dissolved in 1936 Mr. Day was named assistant manager under Mr. McGrew, and just before his election to vice president in charge of the pipe line department he served as manager of that department.

DOBIE SNYDER is in a hospital at High River, Alberta, recovering from injuries received in Turner Valley.

JOHN T. HAYWARD, chief engineer for Barnsdall Oil Company, has returned to Tulsa this week from a trip to California.

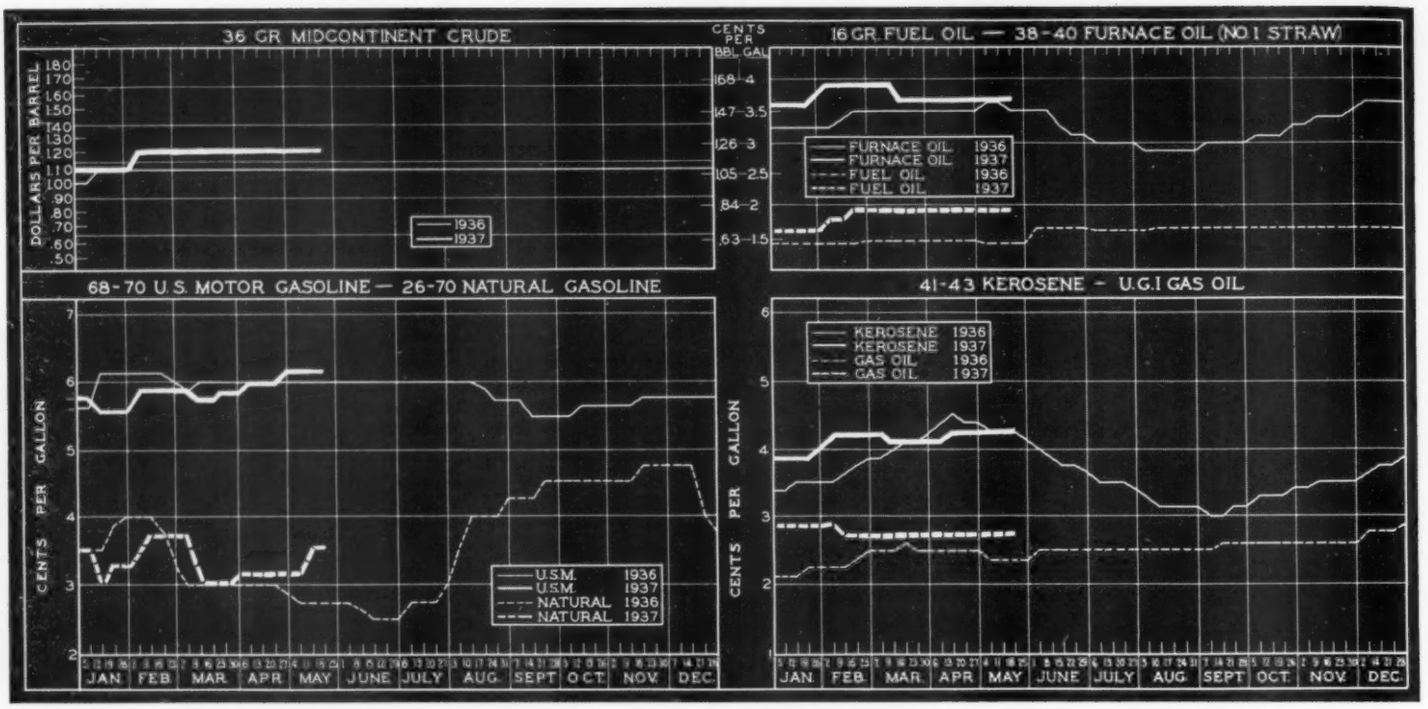
WALKER HATFIELD, chemist for the Producers Refining Company, West Branch, Ogemaw County, Michigan, formerly of Muskegon, Mich., will be wed in June to MISS MARGARET MATTHEWS, of Muskegon.

C. C. ROSS, former minister of lands and mines for Alberta, has been elected president of the Anglo-Canadian Development & Holding Company, Ltd., of Calgary. A. K. LEITCH is vice president and H. E. HOWARD secretary and treasurer.

G. H. STOKES has been assigned to the duties of assistant to the vice president in the Tulsa office of the Shell Petroleum Corporation to succeed R. P. R. McGLASHAN who has been recently transferred to the St. Louis, Mo., office.

HARVEY H. BLAIR, Wichita, Kans., oil producer, has qualified as a big-time fisherman. In one afternoon he caught some mackeral, red snapper, yellowtail, jackfish, a baby shark and a barracuda in Florida waters, it was reported at Wichita. He has been vacationing at Miami, Fla.

J. L. MATHIEU, Gulf Coast division manager of the Schlumberger Well Surveying Corporation, will sail with his family on June 15 for a three-month vacation and business trip to France. While in Paris, he will study the recent technical developments of the various Schlumberger methods.



Representative Mid-Continent Quotations on Crude Oil and Refined Products. Basis Oklahoma (Group 3)

More Cheerful Feeling Is Displayed in Group 3 as Sun Begins to Shine

By T. F. SMILEY

Indications that the Group 3 gasoline market was about to toss off the lethargy which enveloped it were observable this week. Incessant rains continued to hold back demand in many areas, but several sunshiny days in Minnesota territory drew the family car from thousands of garages, with the result that a gratifying little shower of orders for motor fuel descended upon Oklahoma refiners. The improved highway conditions in Minnesota, along with irrefutable evidence that every rainy season has an end eventually, stirred a more cheerful feeling throughout the trade.

Motoring Conditions Disappoint

Motoring conditions in a large part of the region served by Oklahoma refiners have been a disappointment this spring; but confidence is expressed that pleasant weather, assuredly not far away, will set off a lively demand for gasoline. Significant of what the rains have done to the market is the statement of one major company that although its gasoline sales in the two weeks ending April 10 and 17 were substantially higher than those in corresponding weeks of last year, its sales in the next two weeks were approximately half as large of those in 1936.

Notwithstanding the long time it is taking to get the heavy consuming season of 1937 into motion, no burdensome stocks are reported anywhere in Oklahoma refinery tanks. In fact, there is a disposition in some quarters to stay out of the spot market in the belief better tankcar prices are likely to be obtainable a little later on. Export shipments are credited with absorbing all surplus production of third-grade material in the Rodessa field, so that none of it is causing uneasiness in the domestic market. East Texas was reported sold up.

Natural gasoline, with the 26-70 grade at 3½ cents in both Oklahoma and North Texas, showed no sign of weakening. When it took a contraseasonal jump of a quarter-cent two weeks ago it was believed generally the higher prices could not stand long. Many in the trade still say a recession of an eighth- or quarter-cent is to be expected, since this is the time of the year when the naturals ordinarily slide to their annual lows. Some observers express confidence the present prices will hold.

Right at this juncture supply and demand appear to be in fair balance. Maintenance of current price levels is ascribed chiefly to export and coastwise shipments. Two cargoes, both for oversea destinations, were reported this week to be about to leave Gulf ports, one containing 100,000 bbls. and the other 80,000. Buyers for fall and winter requirements are already in the market, and this is helping to stabilize quotations. It is pointed out this class of buying seems to be starting earlier each year. Another helpful factor is seen in the motorist's demand for increased volatility in his gasoline, which spurs refiners to see that their stocks of natural do not run low.

Kerosene and Tractor Fuels Firm

Kerosene and the tractor fuels were firm, although consumption has been hindered by weather which prohibited plowing operations in many regions. An opinion prevails that these products have not yet reached their peak demand. Something approaching scarcity was reported in kerosene. Certain Kansas refiners, who had emptied their own tanks, were looking for kerosene in Oklahoma this week. East Texas was said to have virtually no kerosene for the open market. Apparently plowing operations scarcely will be completed this year before the demand for the harvest field will begin.

Inquiries for furnace oils for next season's use were continuing to arrive in the past week. One company was inquiring for a minimum of 1,500 cars of Nos. 1, 2 and 3 burning oils. The lubricant group was firm. Wax was steady.

Refined Oil Market Barometer

Almost all products showing somewhat stronger tone. Favorable weather is opening additional areas to motor travel, with resultant rising trends in gasoline sales. Kerosene and tractor distillates firm. Early buying of naturals and burning oils for fall and winter requirements is keeping those markets fairly steady. Inventories in all departments reported satisfactory.

MID-CONTINENT. Slightly increased activity in gasoline. Kerosene tractor fuels firm.

EAST COAST. Spot gasoline market improved. Heavy fuel oil holding its strength.

GULF COAST. General market strong.

CALIFORNIA. Gasoline steady. Natural firmer. High-sulfur fuel oil weak.

PENNSYLVANIA. Neutrals continue strong. Kerosene somewhat improved.

CHICAGO. Tankcar gasoline steady, but price-cutting weakens retail trade in spots.

Increasing Vigor Shown by Gasoline and Fuel Oil in Eastern Markets

By H. STANLEY NORMAN

NEW YORK, May 18. — Open-market gasoline trading in the New York harbor territory registered further improvement in the past week with formerly low quotations gradually approaching those maintained by major refiners. The Bunker C fuel oil advance of 15 cents a barrel inaugurated by Standard Oil Co. of New Jersey on May 11 at New York and other eastern seaboard and Gulf Coast ports was followed last week by most other sellers. Tide Water Associated Oil Co. had not officially lowered its previous posting of $1.50 a barrel, to conform to Standard of New Jersey's new price of $1.35. Gulf Oil Corp., Sinclair Refining Co., Socony-Vacuum and others posted the advance of 15 cents and it is believed the market for Bunker C fuel will level off at that figure.

There was no evidence that the Bunker C fuel advance brought any material increase in the volume of offerings on the spot market. In fact, the spot market had been running from 10 to 20 cents a barrel ahead of the major refiners' postings for a week or 10 days before the general advance was announced. Even at higher prices most of the marketers are not exerting special effort to supply other than contract customers.

Bids exceeding 90 cents a barrel on the Gulf Coast are now required to bring out cargo offerings of Bunker C fuel oil. Tightness continues in the tanker market, which in turn is reflected in the Atlantic Coast spot market for Bunker C fuel oil as well as other petroleum products.

There was no change in the light fuel oil market, but movement was continuing at moderate rates in this section and in the New England district since heating is still required for at least a part of each day. Sellers are speaking in terms of building up inventory of light fuel oils for the next consuming season and appear to be content with what little business comes into their plants currently without solicitation. The sharp upswing in fuel oil and distillate burner orders during the first quarter of this year probably is having its influence on fuel oil market conditions. Refiners are well satisfied that stocks will not be too heavy to supply normal winter demand in the 1937-38 season. The relatively small consumption per unit during the past winter season is discounted as unusual and regarded as a condition which probably will not be duplicated again soon.

Gulf Coast gasoline trading last week assumed the important position normally expected at this season of the year. Several cargoes of high-octane gasoline were sold for May, June and July delivery at 6.5 cents a gallon. In the cargoes involved, 70-octane unleaded gasoline is specified.

Export inquiries resting in the Gulf Coast market are seeking two or three cargoes of 64-66, 375-end-point gasoline with bids reported around 6.375 cents a gallon. Some trade observers say 6.5 cents is the minimum figure at which any substantial amount of business can be done on Gulf Coast gasoline of 65-octane or higher rating.

As in the case of gas oil business diverted to the Gulf Coast from Rumania during the earlier weeks of spring, part of the gasoline trade normally supplied from Europe is turning now to American refiners. Rumania's inability to supply the demands of its previous exclusive customers is turning this trade gradually to the United States and to suppliers in the Dutch West Indies.

Retail prices in the vicinity of New York showed little basic change during the week, although the additional tax of a cent a gallon enacted by the New York Assembly is being passed on to motorists hardly without exception. The threatened strike of retail service station attendants failed to materialize when organizations involved in the labor conflict agreed to discuss the issues involved before taking final action. The service station attendants' union is asking a minimum wage of $25 a week and a 40-hour maximum week.

Most service stations in metropolitan New York are posting prices of $1.04 for 5 gallons of "house brand" gasoline, including a total of 5 cents a gallon taxes. The third-grade gasoline price is generally $1.04 for 7 gallons, including tax. Outside of New York proper, however, prices are firm at 18 and 20 cents a gallon for "house brand" and premium motor fuels, respectively. In New England service station prices are reasonably stable outside of Boston and conditions have improved to some extent in northern New Jersey.

Activity in neutral oils continues to feature the western Pennsylvania market. Interrefinery purchases of neutrals and shipping instructions placed by jobber customers against contracts executed early this year are keeping the market virtually cleaned to tank bottoms. There has been no slackening of the demand notwithstanding frequent increases of quotations, and many refiners short on stocks appear willing to pay whatever price is necessary to bring out offerings, although quantities available are usually restricted to a few tankcars.

Gasoline is reasonably strong in the Pennsylvania district, with prices unchanged at 5.625 cents a gallon for U. S. Motor grade and 7 cents for 65-octane. Inability of Standard Oil Co. of Ohio to maintain its advance of a half cent a gallon on tankcar, tank-wagon and service station prices two weeks ago served as a temporary brake. Movement of material, however, has been sufficient to prevent accumulation of stocks, and the market in general is in position to take early advantage of improvement expected to develop when warm weather becomes more settled.

Curtailment of export demand for bright stocks is being felt in the Pennsylvania district, but prices are reasonably well maintained. Export demand, which was particularly brisk during February, March and part of April, has disappeared almost completely. Subsidence of the export demand is ascribed to appearance in European markets of substantial quantities of bright stock from Russia at prices which make the Pennsylvania produced material unattractive to buyers. There are sufficient spot demand orders and shipping instructions from contract customers to prevent abrupt crumbling of the market.

Cylinder stocks are reasonably firm at unchanged prices, although current quotations for 630-flash material are nominal and subject to slight variations from the quoted range of 24.5 to 25 cents a gallon. Although full-scale summer motoring weather is developing less rapidly than some had expected, the tankcar, tank-wagon and barge movement of gasoline throughout the eastern territory is regarded as satisfactory. Consumption so far this spring has exceeded the predictions of many observers, but frequent rains and occasional cold days have combined to restrict motoring. While variable weather conditions have delayed summer-scale gasoline

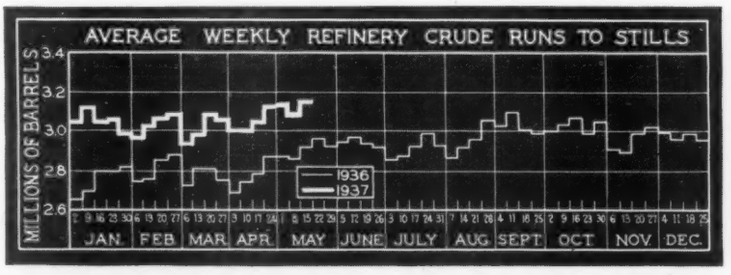
(Continued on Page 182

A. P. I. Weekly Refinery Statistics

Week Ending May 15, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline (bbls.)	Gas oil and fuel oil (bbls.)
East Coast	100.0	524,000	18,761,000	6,181,000
Applachain	88.4	107,000	2,793,000	601,000
Indiana, Illinois, Kentucky	92.1	435,000	14,272,000	4,756,000
Oklahoma, Kansas, Missouri	84.6	286,000	9,009,000	3,052,000
Inland Texas	56.6	135,000	2,046,000	1,483,000
Texas Gulf	95.5	668,000	10,829,000	6,582,000
Louisiana Gulf	96.3	142,000	1,453,000	1,572,000
North Louisiana and Arkansas	63.7	44,000	420,000	323,000
Rocky Mountains	69.7	53,000	2,012,000	720,000
California	90.9	503,000	14,231,000	67,789,000
Total reported	88.8	2,897,000	75,826,000	93,059,000
Estimated unreported	.....	238,000	4,552,000	2,257,000
*Estimated total	.....	3,135,000	80,378,000	95,316,000
*Estimated total previous week	.....	3,065,000	81,469,000	94,874,000
*May 16, 1936	.....	2,920,000	72,490,000	99,120,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending May 1, 1937	303,249,000 barrels
Week ending April 24, 1937	300,737,000 barrels
Week ending May 2, 1936	315,375,000 barrels

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of May 18, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dir.	Inc. tax	tank-wag.
Chicago, Ill.	16.0	14.0	4.0	10.1
Decatur	16.0	14.5	4.0	10.1
Joliet	16.0	14.5	4.0	10.1
Peoria	16.0	14.5	4.0	10.1
Quincy	15.8	14.3	4.0	9.9
Davenport, Ia.	16.0	14.5	4.0	10.1
Des Moines	15.8	14.3	4.0	9.9
Mason City	16.2	14.7	4.0	10.3
Sioux City	16.0	14.5	4.0	10.1
Duluth, Minn.	16.8	15.3	4.0	10.9
Mankato	16.4	14.9	4.0	10.5
Twin Cities	16.4	14.9	4.0	10.5
La Crosse, Wis.	17.4	15.9	5.0	10.5
Green Bay	17.7	16.2	5.0	10.8
Milwaukee	17.3	15.8	5.0	10.4
Detroit, Mich.	15.4	13.9	4.0	9.8
Grand Rapids	16.5	15.0	4.0	10.9
Saginaw	16.3	14.8	4.0	8.5
Evansville, Ind.	17.5	16.0	5.0	†10.6
Indianapolis	17.7	16.2	5.0	†9.6
South Bend	17.9	16.4	5.0	†9.6
Fargo, N. Dak.	17.4	15.9	4.0	11.5
Minot	18.6	17.1	4.0	12.7
Huron, S. Dak.	17.8	16.3	5.0	10.9
Kans. City, Mo.*	15.4	13.9	4.0	8.9
St. Louis*	15.7	14.2	4.0	9.8
St. Joseph*	15.4	11.4	4.0	6.9
Wichita, Kans.	14.9	13.4	4.0	8.9

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Atl'tic City, N. J.	13.0	11.5	4.0	8.0
Newark	12.5	11.0	4.0	8.0
Annapolis, Md.	15.1	13.6	5.0	10.0
Baltimore	14.5	13.0	5.0	8.5
Cumberland	16.9	14.4	5.0	10.0
Wash'g'n, D. C.*	12.5	11.0	3.0	9.0
Danville, Va.	17.7	15.2	6.0	12.9
Norfolk	16.5	14.0	6.0	11.5
Petersburg	16.8	14.3	6.0	11.7
Richmond	16.8	14.3	6.0	11.7
Roanoke	18.0	15.5	6.0	12.9
Charles'n, W. V.	16.3	13.8	6.0	12.6
Parkersburg	15.6	13.1	6.0	11.2
Wheeling	15.5	14.0	6.0	12.2
Charlotte, N. C.	18.9	16.4	7.0	13.6
Hickory	19.4	16.9	7.0	13.0
Mt. Airy	19.2	16.7	7.0	12.8
Raleigh	18.5	16.0	7.0	12.1
Salisbury	19.0	16.5	7.0	12.7
Charleston, S. C.	17.5	15.0	7.0	11.1
Columbia	18.1	16.0	7.0	12.1
Spartanburg	19.2	16.7	7.0	12.9

*Standard of N. J. has discontinued posting service-station prices at all above points except at Washington where a station price of 16 cents is in effect.

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank wag.	Net dlr.	Inc. tax	wag.
Atlanta, Ga.	21.0	18 0	7.0	*13.0
Augusta	19 5	16.5	7.0	*14.0
Macon	21.5	18.5	7.0	*14.5
Savannah	20 0	17.0	7.0	*12 0
Birm'ham, Ala.	21 0	18 0	8.0	12.0
Mobile	22.0	19.0	9.0	11.0
Montgomery	22.0	19.0	9.0	12.5
Jackson, Miss.	21.0	18.0	7.0	*13.0
Vicksburg	20.5	17.5	7.0	*13.0
Jacksonville, Fla.	20.5	17.5	8.0	11.0
Miami	20.5	17.5	8.0	†11.5
Pensacola	22.0	19.0	9.0	12.0
Tampa	21.5	18.5	8.0	11.0
Lexington, Ky.	20.0	17.0	6.0	11.0
Covington	19 5	16.5	6.0	11.0
Louisville	20	17.0	6.0	10.5
Paducah	20.0	17.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, and Tampa, Fla., have a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo.	17.5	5.0	11.5
Grand Junction	20.0	5.0	15.0
Pueblo	15.0	5.0	10.5
Casper, Wyo.	18.0	5.0	11.5
Cheyenne	18.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	21.5	6.0	15.5
Helena	21.5	6.0	15.5
Great Falls	21.5	6.0	15.5
Salt Lake, Utah	19.5	5.0	16.0
Twin Falls, Ida.	21.5	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	6.5	12.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag. con'r.	Di-vided dlr.	Inc. tax	tank-wag.
Ohio points	17.5	16.5	5.0	*13.5

*Includes state tax of 1 cent.

Divided dealer price is also price to authorized agents, exclusive of .5 cent rental. Tank-wagon price is price to commercial consumers in deliveries of 25 gallons or more; less than 25 gallons get service-station price.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline		Inc. tax	Kero. tank-wag.
	Tank wag.	Serv. sta.		
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	9.0
Fresno, Calif.	18.5	19.5	4.0	12.0
Phoenix, Ariz.	21.0	22.0	6.0	‡16.0
Reno, Nev.	20.0	21.0	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

‡Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Albany, N. Y.	14.0	12.5	4.0	7.75
*Met., N. Y.:				
Manh't'n, Br'nx	13.5	12.0	4.0	7.25
Staten Island	13.75	12.0	4.0	7.25
Q'ns & Brklyn	13.5	12.0	4.0	7.25
Buffalo	14.3	12.67	4.0	8.25
Rochester	14.3	12.74	4.0	8.25
Syracuse	14.3	12.7	4.0	8.75
Boston, Mass.	14.0	12.5	4.0	7.50
Portland, Me.	15.8	13.5	5.0	7.75
Manch'ter, N. H.	16.3	14.0	5.0	8.00
Burlington, Vt.	15.9	13.9	5.0	8.75

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point; Monthly purchases under 5,000 gallons, pay divided dealer tank-wagon price at delivery point.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	18.4	16.9	6.0	10.4
McCook	18.0	17.6	6.0	10.0
Norfolk	18.8	17.3	6.0	10.8
North Platte	19.2	17.7	6.0	11.2
Scotts Bluff	19.9	18.4	6.0	10.9

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Ok.	15.0	5.0	7.0
Oklahoma City	15.0	5.0	8.0
Tulsa	14.0	5.0	7.0
Ft. Smith, Ark.	15.0	5.0	10.0
Little Rock	17.5	7.5	9.5
Texarkana	15.0	5.0	9.0

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	18.5	5.0	8.0
San Antonio	14.5	18.5	5.0	8.0

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank dlr.	Tank con'r.	Inc. tax	tank-wag.
N. Orleans, La.	20.0	17.5*	10.0	†14.0
Baton Rouge	18.0	15.5	8.0	12.0
Alexandria	18.5	16.0	8.0	12.0
Lafayette	19.0	16.5	8.0	12.5
Lake Charles	19.0	16.5	8.0	12.5
Shreveport	17.5	15.0	8.0	9.5
Knoxville, Tenn.	21.0	18.5	8.0	14.0
Memphis	19 0	16.5	8.0	12.0
Chattanooga	20.5	18.0	8.0	13.5
Nashville	20.0	17.5	8.0	11.0
Bristol	19.75	18.5	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Standard of La. has transferred all stations to dealers except in New Orleans and Baton Rouge where station prices are 23.5 and 21.5 cents per gallon, respectively.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	14.0	12.5	5.0	10.5
Pittsburgh	15.5	13.5	5.0	11.0
Allentown	14.5	13.25	5.0	11.0
Erie	14.5	13.0	5.0	10.0
Scranton	14.5	13.25	5.0	11.0
Altoona	15.5	13.5	5.0	11.0
Dover, Del.	14.5	....	5.0	11.0
Wilmington	13.5	....	5.0	11.0
Springf'ld, Mass.	14.8	....	4.0	7.5
Worcester	14.3	....	4.0	8.0
Hartford, Conn.	14.6	....	4.0	7.0
New Haven	14.0	....	4.0	7.0
Providence, R. I.	13.0	....	3.0	7.75

Atlantic has transferred all stations to dealers except in Philadelphia and Pittsburgh where prices are 17.5 and 20.0 cents per gallon respectively.

Price basis to undivided dealers—Dealer tank-wagon less .5 cent per gallon.

Consuming accounts not under contract—when made by tank-wagon in quantities of 50 gallons or over, dealer price.

Commercial accounts under contract—annual consumption 2,500 to 100,000 gallons per year, 1 cent above posted tankcar price; over 100,000 gallons per year, .5 cent above posted tankcar price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b Chicago. Each price subject to discount of 1 cent per gallon for 150 gallon lots if covered by contract.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Hamilton, Ont.	22.0	....	6.0	17.0
Toronto, Ont.	22.0	24.5	6.0	17.0
Brandon, Man.	29.8	32.8	7.0	22.8
Winnipeg, Man.	28.2	31.2	7.0	20.7
Regina, Sask.	29.5	....	7.0	22.0
Saskatoon, Sask.	32.3	....	7.0	24.8
Edmonton, Alta.	30.5	33.5	7.0	24.2
Calgary, Alta.	28.0	31.0	7.0	21.5
Vancouver, B. C.	22.0	26.0	7.0	23.0
Montreal, Que.	19.0	....	6.0	17.5
St. John, N. B.	24.0	28.0	8.0	18.5
Halifax, N. S.	24.0	28.0	8.0	18.5

*Imperial gallon used in Canada.

Discount to dealers: Divided dealers pay 3 cents per gallon below station price; undivided dealers pay 4 cents per gallon below station price except in cities of Hamilton, Toronto and Montreal when discounts below station prices are one-half cent per gallon less and in Vancouver where discounts are 1 cent per gallon more.

Retail Price Changes

Standard Oil Co. (Indiana) May 12 advanced tank-wagon and dealer gasoline .3 cent in Detroit.

Atlantic Refining Co. April 16 reduced tank-wagon kerosene .25 cent in Springfield; April 26 reduced dealer gasoline .5 cent in Worcester.

Standard Oil Co. of Nebraska May 7 advanced dealer gasoline .5 cent in McCook.

Standard Oil Co. of Kentucky May 5 advanced tank-wagon and dealer gasoline .5 cent at all Kentucky points; April 29 reduced tank-wagon kerosene 1 cent in Savannah; April 6 advanced tank-wagon kerosene 1 cent in Miami; May 5 advanced tank-wagon and dealer gasoline 1 cent in Augusta.

New York Market

(Continued from Page 181)

consumption, they have contributed to a prolonged season on domestic heating oils and even though the quantity moving is light, it is sufficient to balance the lower turnover in motor fuel.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of May 18, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below (3d gr.)	.05⅛	.05⅜
63-67 octane	.05½	.05⅝
68-70 octane (regular)	.06⅛	.06¼
60-62 400 grades:		
62 oct. and below (3d gr.)	.05⅛	.05⅜
63-67 octane	.05½	.05⅝
68-70 octane (regular)	.06⅛	.06¼
64-66 375		.05¼
68-70 360	.05⅜	.05½

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.05⅛	.05⅜
63-67 octane	.05½	.05⅝
68-70 octane (regular)	.06⅛	.06¼
60-62 400	.05½	.05¼
64-66 375	.05¼	.05¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below		.05⅝
63-67 octane		.06
68-70 octane (regular)		.06½

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below		.05½
63-67 octane		.06¼
68-70 octane (regular)		.06½

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.05⅛	.05¼
63-67 octane	.05½	.05⅝
68-70 octane (regular)	.06⅛	.06¼
60-62 400 grades:		
62 octane and below	.05⅛	.05¼
63-67 octane	.05½	.05⅝
68-70 octane (regular)	.06⅛	.06¼
64-66 375	.05¼	.05¼
68-70 360	.05¼	.05⅜

PENNSYLVANIA (Inland refineries)—

58-60 U. S. Motor:		
Below 60 octane		.05⅝
60-64.9 octane	.07	.07¼
65-70 octane	.07¼	.07½
64-66 375		.05⅝
68-70 350		.05⅞

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07½	.08½
58-60 400, 65 oct. and higher	.08¼	.09¼

EAST COAST (domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)		.06¾
Baltimore		.06¾
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)		.07
Philadelphia	.07	.07¼
Boston		.07¼
Baltimore	.07	.07¼
Charleston, S. C.		.07¼
U. S. Motor, 65 and above:		
*New York (Bayonne)		.07½
Philadelphia	.07¼	.07½
Boston		.07½
Baltimore	.07¼	.07½
Charleston, S. C.		.07½

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.06	.06½
60-64.9		.06½
65 octane and higher		.06½

Naphtha

PENNSYLVANIA (Inland refineries)—

50-52 450 (blending)	.05½
52-54 450 (blending)	.05½
54-56 450 (blending)	.05⅝

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.03½
Grade 18-55	.04⅛	.04¼

NORTH TEXAS—

Grade 26-70		.03½
Grade 18-55	.04⅛	.04¼

CALIFORNIA—

75-85 375-390	.06¾	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.03¾	.03⅞

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04¼	.04⅜
41-43 gr., 300-350 l.b.p., 110-125 flash, 500-520 e.p.	.04⅜	.04½
46-48 gr., 210-230 l.b.p., 480 max. e.p.	.04⅞	.05

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04¼	.04⅜
42-44	.04⅜	.04½

NORTH TEXAS—

41-43		.04⅜

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43		.04½

ARKANSAS (Ark., N. La., Miss. del.)—

41-43		.04¾

PENNSYLVANIA (Inland refineries)—

45		.04⅝
46		.04¾
47		.04⅞

CHICAGO (Based on Group 3)—

41-43	.04⅛	.04¼
42-44	.04⅜	.04½

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04	.05

NEW YORK (Bayonne, N. J.)—

41-43		.05½

***GULF COAST (domestic)—**

41-43	.04⅝	.05

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03⅞
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03⅝	.03½
No. 3, zero to 15, 28-32	.03¼	.03⅜
No. 3, 15 and above, 28-32	.02½	.02¾

NORTH TEXAS—

No. 1 prime white, 38-42		.04
No. 1 straw, 38-40	.03⅝	.03⅞

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03⅜	.03½

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03⅝	.03¾

CHICAGO (based on Group 3)—

No. 1 prime white, 38-40	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03⅝	.03½
No. 3, zero to 15, 28-32	.03¼	.03½
No. 3, 15 and above, 28-32	.02⅝	.02¾

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2		.05⅜
*No. 4		.05⅛

*Barge deliveries one-eighth to one-fourth cent under above, tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02¾	.03
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.87½	.90
Below 18 fuel oil, industrial	.80	.87½

NORTH TEXAS—

U.G.I. gas oil	.02¾	.03½
No. 4, low cold test, 24-28	1.07½	1.12½
No. 5, low cold test, 18-22	.87½	.90
Below 18 fuel oil, industrial	.80	.85

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

ARKANSAS (Ark., N. La., Miss. del.)—

10-14 fuel oil, industrial		.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02¾	.03
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.87½	.90
No. 6, low cold test, 10-16	.80	.85

PENNSYLVANIA (Inland refineries)—

36-40	.04⅜	.04½

CALIFORNIA—

Los Angeles:		
30-34 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.15	1.35
12-16 (bunkers at tidewater)	.90	1.00
10-16 (cargo lots)	.75	.95
12-17 (tankers)	.75	.95
San Joaquin Valley:		
10-18 (tankcars)	.70	.90
24 plus diesel, per bbl.	1.00	1.35
San Francisco:		
27 plus diesel		1.40
24 plus diesel (bunkers)		1.40
10-16 (bunkers)		1.00

GULF COAST—

28-30 gas oil	.03⅞	.04⅛
28-30 diesel (bunkers)	1.65	1.90
Bunkers (bulk cargoes)		.95
Bunker C (bunkers)		1.05

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		2.10
28-30 diesel (tankcars)		.04¾
Bunker C (to ocean-going ships in N. Y. harbor)	1.35	1.50
Industrial fuel (tankcars)		.04½

*Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:	
190-200 D, 15-25	.23
150-160 D, 0-10	.20
150-160 D, 15-25	.19½
150-160 E, 15-25	.19
100-110 D, 0-10	.18
Steam refined:	
631 green (treated)	.17½
600 dark green (untreated)	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 145-50 at 210, 540-550 flash):

10 pour test	.28	.28½
15 pour test	.27	.27½
20 pour test	.26	.26½
25 pour test	.25	.25¼
Steam refined:		
600		.17
650		.19
600 Pennsylvania flash		.20
630 flash		.23½
600 Warren E filtered		.20

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:		
150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-3½		.13
400-3½		.14
100-2½ paraffin oil		.05¾
15-20 Cold Test:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12
280-4		.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07½	.07⅝
500-3½	.08½	.08⅝
750-3½	.08⅝	.09¼
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6		.07
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)

Pale Oils:		
100-2½-3	.07	.08
200-2½-3	.7	.08
300-2½-3	.07	.08
400-3-4	.09	.11
540-3-4	.09	.11
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07	.08
300-5-6	.07	.08
350-5-6	.10½	.11½
400-5-6	.10½	.11½
450-5-6	.10½	.11½
500-5-6	.10½	.11½
600-5-6½	.10½	.11½
700-6½ plus	.10½	.11½
750-6½ plus	.10½	.11½
900-6½ plus	.10½	.11½

PENNSYLVANIA—

150 vis. at 750° F. color, 400-405 flash:		
Zero pour test	.25½	.26
10 pour test	.24½	.25
15 pour test	.24	.24½
25 pour test	.23	.23½
180 vis. at 70° F., 3 color:		
25 pour test	.26	.26½
200 vis. at 70° F., 3 color:		
Zero pour test	.30	.30½
10 pour test	.29	.29½
15 pour test	.28	.28½
25 pour test	.27	.27½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale		.02¾

PENNSYLVANIA (Inland refinery)—

122-124 (a.m.p.) w.c. scale	.0265	.0270
124-126 (a.m.p.) w.c. scale	.0270	.0275

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0250	.0255
124-126 (a.m.p.) y.s.	.0260	.0265
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05⅞	.06
60-62 400		.05⅝
61-63 390	.05⅞	.06
64-66 375	.06⅛	.06¼

LOS ANGELES—

U. S. Motor grades:		
53-55 octane		.04¾
55-65 octane	.04¾	.05
65-67 octane		.05
67-69 octane		.05¼
Above 69 octane	.05½	.06

KEROSENE

GULF COAST—

41-43 prime white	.04½	.05
41-43 water white	.04½	.05
44 water white	.04¾	.05

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.26½	.27
600 S.R. unfiltered		.24
630 S.R. unfiltered		.25½
600 flash, S.R.		.26½
630 flash, S.R.	.32	.32½
Bright Stocks:		
8 color	.32	.32½
6½ plus color in dilution		.31½

NEUTRAL OIL

200-3 color	.32½	.33
150-3 color	.29	.29½

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.04125
125-127 a.m.p.		.0425
128-130 a.m.p.		.0450
133-135 a.m.p.		.0525
135-137 a.m.p.		.0550
Crude scale:		
124-126 w.s.	.0260	.0270
124-126 y.s.	.0245	.0250

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 28, 1937)

East Texas*	$1.27
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

West Texas

See gravity table.	
Pecos County*	.91
Pecos shallow†	.81

*Shell Petroleum Co., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Gulf Coast

(January 28, 1937)

Choctaw and Darrow, La.	See note below
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Tomball, Tex.	1.30
Lafitte, La.	1.24
Livingston, Tex.	1.27
Satsuma	1.20
Heyser, light (Nov. 1, 1936)	1.15
Heyser, heavy (Nov. 1, 1936)	.90
Placedo (Nov. 1, 1936)	.90
Welsh, La.	.98
Tepetate (La.) (Jan. 4, 1937)	1.12

Greta, Refugio, O'Connor, McFadden, Saxet, Segno, Taft, Tomoconnor and Plymouth take same gravity prices as Gulf Coast, Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light.*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Nov. 4, 1936)*	.57
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.82
Hogback, N. Mex.*	1.33
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. Mex.	.90
Maljamar, N. Mex.	.90
Canon City and Florence, Colo.	1.10
Florence, Colo.	.98
Lance Creek, Wyo.	.97
Sunburst, Mont. (June 5, 1936)	1.20
Cat Creek, Mont.	1.40
Cut Bank, Mont.	1.35

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co.

Middle Western States

OHIO OIL CO.
(Effective January 28, 1937)

Lima	1.25
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich.	1.42
West Branch, Mich.	1.26
Buckeye (March 16, 1937)	1.39½
Arenac, Mich.	1.26
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp., effective January 29. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

Southwest Texas

(January 28, 1937)

Pettus	1.37
Salt Flat, Darst Creek, Hilbig, Carroll Clark, Zoboroski	1.00
Luling	1.00
Lytton Springs	1.12

Saxet and Taft take same gravity table as Gulf Coast.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90

Eastern States

TIDE WATER PIPE LINE CO.
(Effective Feb. 24, 1937)

Bradford, Pa.	$2.67
Allegany, N. Y.	2.67

SOUTH PENN OIL CO.
(Effective Feb. 24, 1937)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.67
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.42
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.37
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.22
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Jan. 29, 1937)	1.42

PENNZOIL CO.
(Effective Feb. 24, 1937)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	2.67
Includes Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	2.66
Includes Tidioute district.	
Group C	2.65
Includes Turkey and Tidioute districts.	
Group D	2.64
Includes Bear Creek and Porkey districts.	
Group E	2.61
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	

Price depends on lengths of pipe line haul to plant at Oil City.

PURE OIL CO.
(Effective Feb. 24, 1937)

Cabin Creek, W. Va.	2.37
Bradford Hollow, W. Va.	2.37
Kelly Creek, W. Va.	2.37

Canada

Ontario (Sept. 9, 1933)*	
Petrolia	$2.10
Oil Springs	2.17
Turner Valley, Alberta province (Dec. 16, 1936):†	
Clear naphtha	$2.60
Discolored naphtha, 65 gravity and higher	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	1.55
Increasing 3 cents for each degree of gravity with top price for 64-64.9 gravity	2.27

These prices delivered field tankage.
*Imperial Oil, Ltd.
†Imperial Oil, Ltd., and Regal Oil & Refining Co. On crude oil alone British American Oil Co. posted above prices on December 9, 1936.

Mexico

Panuco*	$1.24

*In U. S. currency, f.o.b. ship, based on April spot market transactions.

Texas Wildcats

(Continued from Page 177)

Carbon, 150 ft. fr. W and 250 ft. fr. N of S 40 ac. of W½ NE¼ sec. 9 H.&T.C. Sur., Blk. 2. Mov. in.

J. A. Bearman et al No. 1 Mrs. R. L. Poe, S edge Cisco, sec. 79, H.&T.C. Sur., Blk. 4. Drlg. 2,375 ft.

Hoffman & Page No. 1 Dodd, 5 mi. S of Ranger, Subd. 11, William VanNorman Sur. T.D. 3,440 ft.; tested 4,500,000 ft. gas; S.D.

Haskell County

Danciger O. & R., Inc., No. 1 Pardue, 8 mi. E Stamford, sec. 48, Thos. Toby Sur., Abst. 396. Drlg. 950 ft.

Forest Dev. Corp. No. 1 Pardue, 6 mi. NE Stamford, sec. 1, H.&T.C. Sur., Blk. 1. Drlg. 565 ft.

Jones County

Art Cox No. 1 West, 10 mi. E Noodle Creek pool, Lot 72, Godwin Subd., Dewitt Co. Sch. Lds. Drk.

Fain & McGaha Oil Corp. No. 1 Eula G. Lucas, 5½ mi. NE Avoca, sec. 166, B.B.B.&C. Sur. Drlg. 1,050 ft.

Fain & McGaha Oil Corp. No. 1 J. H. Wheeler, 3 mi. NW Sandy Ridge pool, sec. 55, O.A.L. Sur. M.I.

G. M. Gillespie No. 1 W. H. McKeever, 4 mi. SE Anson, sec. 53, O.A.L. Sur. Drlg. 1,085 ft.

Golden Pet. Co. No. 1 Wooten, SE cor. county, 330 ft. from S, sec. 4, B.A.L. Sur. Spd. and S.D.

Humble O. & R. Co. No. 1 Teaff Est., E S and W of NE¼ sec. 33, T.&P. Sur., Blk. 18. Loc. for 5,600-ft. Ordovician test.

A. P. Kouri et al No. 1 Winkles, 2 mi. N Nugent, J. M. Polk Sur. A-495. L.S.O. 1,807-11 ft.; U.R. 6⅝-in.

Moutray Oil Co. et al No. 1 G. M. Nugent, 3 mi. N of Hawley pool, sec. 23, T.&P. Sur., Blk. 15. Moving in.

Peckham et al No. 1 Denton Co. Natl. Bank, NE cor. county, sec. 17, H.&T.C. Sur., Blk. 3. U.R. 8¼-in. 1,410 ft.

Riddle et al No. 1 J. D. Freeman, 8 mi. SW Anson, sec. 6, T.&P. Sur., Blk. 17. Drlg. 1,860 ft.

Palo Pinto County

Paul Garrett No. 1 Mabry heirs, NE cor. county, sec. 2,572, T.E.&L. Sur. Drlg. by bit 470 ft.

Henry Hobbs et al No. 1 Bessie Holt, 4 mi. S. Graford, sec. 1,783, T.E.&L. Sur. S.D. 200 ft.

Earnest Lloyd et al No. 1 Bailey, 3 mi. NE Graford, sec. 2,003, T.E.&L. Sur. Drlg. 1,700 ft.

Shackelford County

Baker Oils, Inc., No. 1 Davis-Walker, SW cor. county, sec. 48, T.&P. Sur., Blk. 14. Sd. 1,548-62 ft. and 1,567-71 ft.; shot 40 qts.; est. 40 bbls.; C.O.

Ben Banner No. 1 Dawson & Conway, 4 mi. NE Morris-Buie pool, C NW¼ of SE¼ sec. 176, E.T.R.R. Sur. Drlg. 1,170 ft.

Forest Dev. Co. No. 1 McKeever, NW cor. county, sec. 14, H.&T.C. Sur., Blk. 3. Drlg. 1,110 ft.

Healy Drlg. Co. No. 1 L. J. Ackers, 5 mi. SE Bluff Creek pool, sec. 26, T.&P. Sur., Blk. 13. Drlg. 1,500 ft.

Stephens County

Clark & Cowden et al No. 2 Echols Heirs, 6 mi. SE Ivan, sec. 10, S.P.R.R. Sur., Blk. 3. Drlg. 520 ft.

Philtop O. & G. Co. No. 1 T. M. Corbett, 8 mi. NE Caddo, Edward Romershausen Sur., Abst. 149. Drlg. 1,500 ft.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis, 2 mi. S Arlington, H. Blackwell Sur. S.D.O. 2,140 ft.

Taylor County

Felmont Corp. No. 1 Blackwell & Phillips, 5 mi. NE Abilene, 330 ft. from N and E lines, sec. 30, B.A.L. Sur. Drlg. 315 ft.

Fields, Finley & Cherry No. 1 Hinds, 1 mi. W. Tye, Blk. 5, Jose Gabo Sur. No. 128. Set csg.; T.D. 2,340 ft.

Crude Prices by Gravities

	Oklahoma-Kansas	Oklahoma-Kansas	North and Central Texas	East Central Texas (Mexia district)	North Louisiana-Arkansas	Gray County, Texas	Hutchinson-Carson counties, Texas	Rodessa, Louisiana-Texas and Panola County, Texas	Conroe, Tomball, Raccoon Bend, Satsuma, Texas	Gulf Coast	Gulf Coast	West Texas except Pecos County, Lea County, N. Mex.	Mirando district, Texas	Marion County, Texas	Government Wells, Texas	Anahuac, Texas	White Castle, Louisiana	Iowa, Louisiana	Cayuga, Texas
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Bel. 18	....	....	....	....	....	....	....	....	....	$.90	....	....	....	....	....	....	....	....	....
18-18.9	....	....	....	....	....	....	....	....	....	.92	....	....	....	....	....	....	....	....	....
19-19.9	....	....	....	....	....	....	....	....	....	.94	....	....	....	....	....	$.92	$.94	$.84	....
20-20.9	....	....	....	....	....	....	....	....	....	.96	$.95	....	$.90	....	$.90	.94	.96	.86	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.93	....	.93	.96	.98	.88	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	.96	....	.96	.98	1.01	.91	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	.99	....	.99	1.00	1.04	.94	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.02	....	1.02	1.02	1.07	.97	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.05	.92	....	1.04	1.10	.99	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	....	1.06	1.13	1.03	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	....	1.08	1.15	1.05	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	....	1.10	1.17	1.07	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	....	1.12	1.19	1.09	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	....	1.14	1.21	1.11	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	....	1.16	1.23	1.13	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	....	1.18	1.25	1.15	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	....	1.20	1.27	1.17	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	....	1.22	1.29	1.19	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	....	1.24	....	1.10	....
36-36.9	1.22	1.22	1.12	1.19	1.13	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	....	1.26	....	....	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	....	1.28	....	....	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	....	1.30	....	....	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	....	1.32	....	....	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	....	1.34	....	....	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Dickey, Eason, El Dorado, Empire, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Crude Oil Purchasing Co.
Columns, 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—Humble Oil & Refining Co.
Column 14—Magnolia Petroleum Co.
Column 15—Sun Oil Co.
Column 16—Gulf Refining Co.
Column 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1937 High	1937 Low	Week ended May 15 Sales	Week ended May 15 High	Week ended May 15 Low	Week ended May 15 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
114⅞	92½	1,400	99	92½	93½	Amerada Corp.	788,675	N.P.	50cQ	1-30-37	$2.00	125½	75	80	48½
37	28	10,000	30⅛	28	29⅜	Atlantic Refining	2,664,000	$25	25cQ	6-15-37	1.25	35⅛	26⅝	28	20⅛
43⅜	29⅞	3,700	32¼	29⅞	30	Barber Co.	387,149	$10	25c.	6-1-37	.50	38½	21	22½	11¾
35¼	24¼	16,200	27¼	24¼	25¾	Barnsdall Oil Co.	2,247,974	$5	25cQ	5-1-37	.80	28¼	14⅛	14¾	5⅞
20⅞	12	45,500	13½	12	12⅛	Columbia Gas & Elec.	11,610,036	N.P.	20c	11-16-36	.40	23⅜	14	15¾	3⅜
17⅞	14½	38,000	15⅞	14½	14⅞	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	5-15-37	.80	17¼	11½	12¼	6½
47⅜	39¾	13,500	43¾	39¾	41⅞	Continental Oil of Delaware	4,682,615	$5	25cQ	3-29-37	1.50	44⅞	28⅛	35	15⅛
17⅝	12½	27,500	15⅞	13⅞	14⅝	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	13⅞	6⅜	7	1½
35⅜	27⅝	7,000	29⅜	27⅝	28¼	Mid-Continent Petroleum	1,855,912	$10	50cSA	6-15-37	1.15	30⅞	17¼	20½	9½
34	25⅜	3,500	28¼	25⅜	26¼	Mission Corporation	1,399,345	N.P.	....	....	.45	29⅞	16¾	17¾	10⅜
109⅞	62	10,100	107½	98	105	National Supply of Delaware	382,591	$25	....	5-15-31	....	75½	19⅞	20⅞	9
22⅞	17⅛	29,500	20¾	18⅛	19⅛	Ohio Oil Co.	6,563,377	N.P.	50cSA	6-15-37	.60	18	12⅛	14¼	9¼
29¾	20¾	2,400	24	20¾	23	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	23½	11¾	14	6¾
4½	2¾	3,300	4	3	3	Panhandle P. & R.	198,770	N.P.	....	.....	....	4¼	1⅜	1⅞	½
59¼	49½	15,800	55⅜	52½	53¾	Phillips Petroleum	4,449,052	N.P.	75cQ†	6-1-37	2.50	52⅜	38⅛	40	13¾
29⅞	24¼	7,500	27½	25⅞	26⅜	Plymouth Oil Co.	1,050,000	$5	35cQ†	3-31-37	.90	27¾	11⅞	13	6½
24⅜	17¼	37,000	19⅝	17¼	17⅞	Pure Oil Co.	3,281,120	N.P.	....	9-1-30	....	24⅞	16	17	5⅞
54⅛	36⅝	5,800	42½	36⅝	39½	Seaboard Oil of Delaware	1,244,283	N.P.	25cQ	6-15-37	1.00	44	30½	36⅞	20¾
34⅜	25⅝	6,700	29¼	27½	28¾	Shell Union Oil	13,070,625	N.P.	25c	12-15-36	.25	28¼	14¾	16½	5½
105⅜	102	1,100	104	102⅞	102⅞	Shell Union Oil 5½% pfd.	343,500	$100	26⅛c	12-15-36	28.87½	127½	102	111	63⅛
4¼	3½	700	3¾	3½	3½	Simms Petroleum	461,698	$10	50c liq.	1-9-37	2.25 liq.	6¾	3½	18¾	4¾
60⅝	42	3,900	57½	51⅞	52¾	Skelly Oil	1,006,348	$15	50c	7-1-37	....	47⅜	19½	20½	6½
20¼	16¼	57,600	19⅛	17⅞	18¼	Socony-Vacuum	31,151,071	$15	25cSA	3-15-37	.70	17½	12½	15¾	10⅝
50	41¾	15,400	43⅝	41¾	42½	Standard Oil of California	13,014,754	N.P.	45cQ†	6-15-37	1.20	47⅝	35	41⅛	27¾
50	43⅛	14,000	44½	43⅛	43¼	Standard Oil (Indiana)	15,196,241	$25	40cQ†	6-15-37	2.40	48½	32¾	33⅜	23
32	30⅝	400	30¾	30⅝	30¾	Standard Oil of Kansas	134,841	$10	$1	12-26-36	1.00	31	25	32	20
70	63⅝	26,500	67⅝	63⅝	64½	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	6-15-37	2.00	70⅜	51⅛	52⅜	35¾
77½	67½	800	68	67	67	Sun Oil	2,156,825	N.P.	25cQ	6-15-37	$1 & 6% Sk.	91	70	77	60½
65⅛	50⅜	42,600	61½	58	59¼	Texas Corp.	10,896,858	$25	50cQ	4-1-37	1.50	55¼	28⅞	30¼	16½
9⅝	6¾	9,500	7⅝	6¾	7	Texas Gulf Producing Co.	888,123	N.P.	5c	12-15-36	.05	8⅞	4⅜	4⅜	2½
16⅝	11¾	12,000	13¾	11¾	12¾	Texas Pacific Coal & Oil	888,237	$10	10c	6-1-37	.25	15¼	7½	9¼	3¼
21⅝	16¾	11,300	18⅛	16¾	16⅞	Tide Water Associated	6,288,512	N.P.	20cQ	6-1-37	.70	21¾	14¾	15⅞	7⅝
28¼	23¾	7,000	24¾	23¾	24⅛	Union Oil of California	4,386,070	$25	30cQ	5-10-37	1.00	28½	20¾	24	14¾
31½	26½	600	29	27½	27½	Union Tank Car Co.	1,200,000	N.P.	40cQ	6-1-37	1.20	31⅝	22⅝	26½	20⅞
6¼	4¼	2,300	4⅞	4⅜	4¾	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5¼	2¾	3⅛	1

*Ex-dividend. †Includes extras.

New York Curb Exchange

1937 High	1937 Low	Week ended May 15 Sales	Week ended May 15 High	Week ended May 15 Low	Week ended May 15 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
21⅜	16	3,600	19	16¾	18	Bridgeport Machine Co.	260,000	N.P.	$1	12-21-36	$1.00	21	13¼	14⅛	3¾
51½	46	50	48	48	48	Buckeye Pipe Line Co.	200,000	$50	$1Q	6-15-37	3.25	50	39¾	42[illegible]	[illegible]½
2¾	1¾	13,200	2½	1¾	1⅞	Carib Syndicate	799,020	25c	....	.....	....	4⅞	1⅞	[illegible]¼	1⅝
123	110¼	50	118	118	118	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	3-29-37	7.00	124¾	105	157	115
5⅜	3⅛	40,700	3⅝	3⅛	3¼	Cities Service	37,804,394	N.P.	....	6-1-32	....	7⅜	3	3¼	¾
4⅝	1⅝	6,400	2	1⅝	1⅝	Cosden Oil	399,687	$1	....	.....	....	4½	1½	1½	¼
38	28½	8,800	33½	32	32¼	Creole Petroleum	6,974,356	$5	50cSA†	6-10-37	.50	39	19⅞	23¾	10
18⅝	12⅛	900	13½	12⅛	12⅞	Darby Petroleum	351,390	$5	25cSA	1-15-37	.50	18⅛	9	8⅞	4
8¼	5¼	2,000	7¼	6⅛	6¼	Derby Oil & Refining	263,162	N.P.	....	.....	....	6¾	1⅞	2	⅝
47½	36½	50	36½	36½	36½	Eureka Pipe Line	50,000	$50	$1Q	5-1-37	4.00	47½	38½	38	33¼
63½	51⅝	7,200	55½	51⅝	53½	Gulf Oil Corp.	9,076,202	$25	25cQ	4-1-37	1.50, 100% Stk.	59	36	74¾	50¼
87	75	3,200	77¼	75	76	Humble Oil & Refining	8,923,935	N.P.	37½cQ	4-1-37	1.50	80	57	64	44
24¼	20⅛	4,400	21⅞	20⅞	21⅜	Imperial Oil of Canada	26,919,871	N.P.	62½cSA‡‡	6-1-37	1.25	24½	19¾	22½	15⅜
15	7¾	200	12	11⅞	11⅞	Indiana Pipe Line	300,000	$10	30cSA	5-15-37	.80	9¾	5½	6⅛	3⅝
39½	33¾	5,000	36¼	35⅝	35⅞	International Petroleum	14,247,088	N.P.	$1.25†‡	6-1-37	2.50	39⅝	32⅝	39¾	28
15¼	11½	9,100	12⅞	11½	11⅝	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	3-15-37	.50	15⅜	9⅞	11⅜	4⅜
26¾	16⅛	2,700	22⅞	20¾	21¾	Lion Oil Refining	270,000	N.P.	25cQ	12-26-36	.75	17¾	7⅜	8⅛	3½
14¼	10⅜	5,100	12¼	10⅞	12⅛	Lone Star Gas	5,382,723	N.P.	20c	4-20-37	.60	14¼	9⅞	10⅞	4½
14⅝	10	1,100	11½	10	10	Midwest Oil Co.	998,444	$10	50c	6-15-37	....	..	..	..	..
7⅞	6	1,500	6⅝	6⅛	6⅛	Mountain Producers	1,682,182	$10	30cSA	6-15-37	.60	8⅜	5	5¾	4⅛
19½	15½	2,800	16¼	15⅝	15⅝	National Fuel Gas	3,810,183	N.P.	25cQ	1-15-37	1.00	23	17⅜	20	11¾
12½	10	2,700	12½	11¼	11¼	National Transit	509,000	$12.50	45cSA	6-15-37	.75	15¾	9¼	10⅝	6¾
6⅛	4¾	No sales	..	..	..	New Bradford Oil	1,445,202	$5	15cSA	4-15-37	.10	4⅝	2⅞	3¼	2
5	2⅝	100	2⅞	2⅞	2⅞	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.01	6⅝	1⅝	2½	1
5⅜	4½	No sales	..	..	..	New York Transit	100,000	$5	15cSA	10-15-36	.35	6¼	4¼	4⅞	3
12¾	7½	300	11½	11	11	Northern Pipe Line	120,000	$10	40c	6-1-37	.40	9¾	4⅞	8	5¼
9⅝	5½	7,500	8	6⅝	7⅜	Pantepec Oil	1,608,700	N.P.	....	.....	....	10⅛	3¼	4⅜	1¼
13¾	5¾	2,100	7	5¾	6⅛	Root Petroleum Co.	336,045	$1	25c	11-2-36	.50	19¼	4½	5	1½
6½	4	6,200	6⅜	5⅜	5¾	Ryan Consolidated	296,931	N.P.	....	.....	....	4¾	1⅞	2½	⅝
48	42	700	42½	42	42	South Penn Oil	1,000,000	$25	60cQ†	3-29-37	2.60	44	32½	34½	21⅝
7¼	5	200	5½	5½	5½	Southern Pipe Line	100,000	$10	20cSA	3-1-37	.25	7⅞	3¼	5	3⅞
42	30	No sales	..	..	..	South West Penna. Pipe Lines	35,000	$50	50cQ	4-1-37	13.00	60	44	56	44¼
20¾	19	1,700	19⅜	19⅛	19⅛	Standard Oil of Kentucky	2,604,790	$10	25cQ	3-15-37	1.35	23⅜	17⅛	24	18
13¾	11	100	11	11	11	Standard Oil of Nebraska	188,403	$25	25c	3-29-37	.25	14⅝	11	12	7⅞
45	33¼	1,400	38½	36	36⅛	Standard Oil of Ohio	753,740	$25	25cQ	3-15-37	2.00	40	21¾	23⅝	11½
4⅞	4	6,700	4⅜	4	4	Sunray Oil	1,910,119	$1	5c	4-26-37	.10	5	2⅝	2⅞	⅞
7⅝	5¾	1,000	5¾	5⅜	5⅝	Texon Oil & Land	336,028	$2	15cQ	3-31-37	.60	9¾	5⅝	6⅞	5

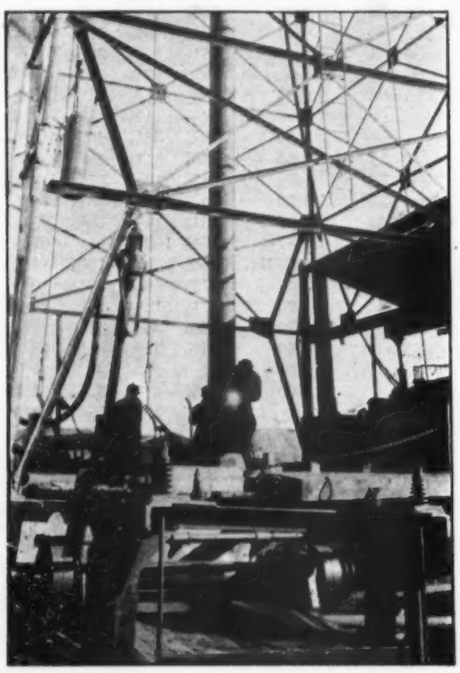
*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

NEW OR IMPROVED EQUIPMENT

Welding Operation Conducted in Derrick of Kansas Well

Pictured here is the welding operation during installation of 90 feet of 16-inch O.D., three-gauge slip-joint surface casing at a location north of



Hayes, Kans. It was found field welding operations cost 3 cents per lineal foot of casing. The surface casing is a product of American Rolling Mill Co., Middletown, Ohio, and is distributed by National Tank Co., Tulsa.

Armco-National surface casing is a spiral butt-welded pipe of standard O.D. sizes, made with either slip-joint couplings or standard A.P.I. thread ends and collars. The buttweld spiral construction adds strength to the joint and because the surface is comparatively smooth, the casing, it is said, does not tend to float in the hole during the cementing process. The smooth outer wall lends itself to the use of standard slips or tongs.

Bulletins, Booklets and Other Literature for the Trade

A clever mailing-piece devised by Landis Machine Co., Waynesboro, Pa., is in the form of a checkbook inscribed "Bank on Landis for Savings." Each of the 43 "checks" contains a record of threading costs and production figures on a specific job.

Bound in semiflexible leather, the tenth edition of the American Pipe Manual is announced by American Cast Iron Pipe Co., Birmingham, Ala. Containing 205 pages, this latest edition of the manual covers several products now listed for the first time.

The "Shield-arc SAE" welder, type S-6005, engine-driven, is the subject of a bulletin sent on request by the Lincoln Electric Co., Cleveland, Ohio.

Fairbanks-Morse bulletin 5814F describes that company's ball-bearing centrifugal pumps, approved by the National Board of Fire Underwriters and the Associated Factory Mutual Fire Insurance Companies.

Among features of interest to oil men in the current issue of the Armstrong Trap Magazine, published by Armstrong Machine Works, Three Rivers, Mich., are two pages devoted to installations in the natural gas industry.

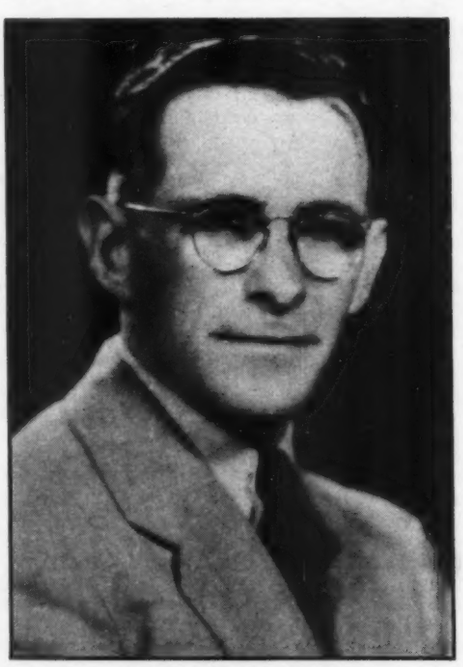
Important new methods and devices in the field of gas measurement are discussed in a bulletin obtainable from American Meter Co. branch houses. One new invention is the American soldered-seal index frame and glass. Another is the American silent reverse stop.

Martin-Decker Corp., Box 571, Long Beach, Calif., has published a leaflet, describing and illustrating typical uses of the measuring-line weight-indicator. The device shows the actual tension in measuring-lines even while they are in rapid motion.

Slonneger Is Now Continental's Assistant Chief Engineer

J. C. Slonneger, recently appointed assistant chief engineer of Continental Supply Co., Dallas, Tex., began his service in the engineering field with Caterpillar Tractor Co. almost a quarter-century ago. His career includes seven years with the International Harvester Co. where he headed the research engineering department. For the past six years he supervised engineering in the Mid-Continent, Rocky Mountain and California areas for the Falk Corp. He graduated from the University of Illinois in 1913.

Many of his technical articles and engineering papers have appeared in trade journals and he has

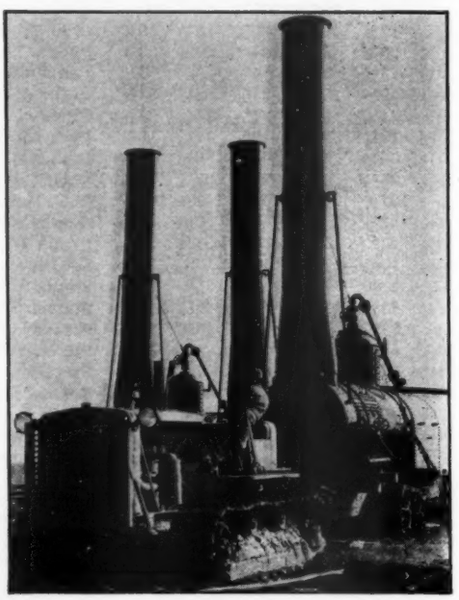


J. C. SLONNEGER

a number of inventions to his credit, including the Emsco-Slonneger type counterbalance for oil-field pumping units.

"Caterpillar" Makes Easy Job of Moving Rig on Oil Lease

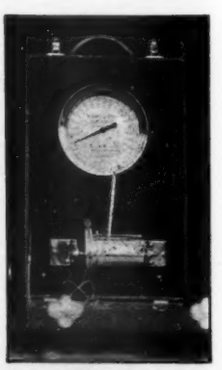
Here is a model Seventy "Caterpillar" tractor making a simple job of moving an oil rig on Athey 10-ton wagons for Sun Oil Co. on a lease near Nome, Tex. The tractor is equipped with a Hyster winch with drum capacity of 800 to 1,000 feet of



cable. Each of the boilers in this job weighs approximately 40,000 pounds and the derrick weighs 150,000 pounds. The tractor is owned by Union City Transfer Co., Beaumont, Tex.

McKinney-Tolson's Appliance Weighs Pumping Well Load

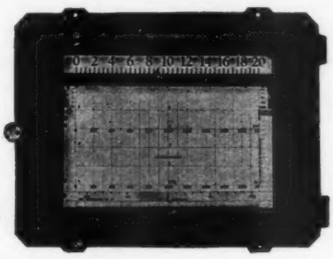
A dynamometer for weighing polished-rod loads and pullrod loads of pumping wells has been placed on the market by McKinney-Tolson Engineering Co., Worth Building, Fort Worth, Tex. Ruggedness, simplicity and dependability are claimed for this instrument which is hydraulic in principle and which consists of a cast-steel housing filled with fluid and an annular-shaped plunger reposing on the fluid within the housing. Stuffing-glands keep the fluid from escaping.



The housing and plunger assembly rests on top of the mulehead bridle clamp and a polished-rod clamp is set on the polished-rod directly above the plunger. The bolts of the lower clamp are loosened, causing the entire weight of the sucker-rods and oil to bear upon the plunger. An all-metal flexible hose transmits the fluid pressure to the recording apparatus on the derrick floor. The motion of the recorder drum is synchronized with the motion of the polished-rod by connecting the cord from the drum to the walking-beam.

New Tagliabue Potentiometer Photoelectrically Balanced

C. J. Tagliabue Manufacturing Co., Park and Nostrand Avenues, Brooklyn, N. Y., has announced a new recorder, the Celectray. A sensitive mirror galvanometer is the primary controlling element in which an inertialess beam of light takes the place of the customary metal boom or pointer. The beam of light from the galvanometer in moving on and off a phototube passes the "controlling edge" of a screen, thus operating relays which in turn control a reversing motor. This motor drives the moving contact of the Wheatstone bridge or potentiometer. The phototube is not a calibrated element, but serves only to detect the direction of



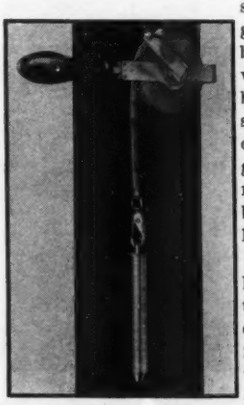
the light-beam and bring the galvanometer to zero deflection, according to the well-known null method of balancing an electric circuit. The new instrument, therefore, is not a photoelectric potentiometer in the sense that a balance of photoelectric current is implied.

It is evident that the galvanometer is free at all times from mechanical engagement, and this fact, together with its low moment of inertia, permits rapid balancing and control actions. Furthermore, a high current sensitivity is available, permitting the use of high resistance, or of long thermocouple leads without material loss of accuracy in the balancing. Or, on occasion, a low-scale range does not require the use of a low resistance and its resultant disadvantages.

The manufacturers say the new instrument is noteworthy for its extreme simplicity, accuracy and speed, particularly in the multiple point recorders. The average speed of the multiple point instrument is less than 15 seconds per point and the accuracy is guaranteed to one-tenth of 1 per cent. In the Celectray the problem of stopping a moving light-beam on the edge of a photoelectric cell with speed and precision is said to have been solved for the first time. This solution has resulted in elimination of many parts from previous models, and increased the available speed of recording.

Black-on-White Steel Tape for Oil Gaugers Is Easy to Read

Dallas Wyteface, a new black-on-white steel tape for oil gaugers, has been announced by Keuffel & Esser Co., Hoboken, N. J. This improved steel line has jet-black graduations and numbers on a crack-proof white surface. The background offers a strong contrast with crude oil, and aids greatly when accurate measurements must be taken under bad lighting conditions.



The tape is said to have a new resilience that prevents kinking, curling and "lariating." The manufacturer states that the corrosion-proof surface protects the steel from rust, greatly increasing the useful life of the line. Oil, sludge and grime can be removed with a damp cloth. The sturdy stainless steel reel, designed to stand up under rough treatment and abuse, is fitted with a standard type gauger's bob.

In addition to the Dallas model there is a complete line of Wyteface steel tapes in cases and on reels for every oil-field requirement. The tapes are available through recognized oil well supply companies.

Wisconsin's Truck-Weight Law

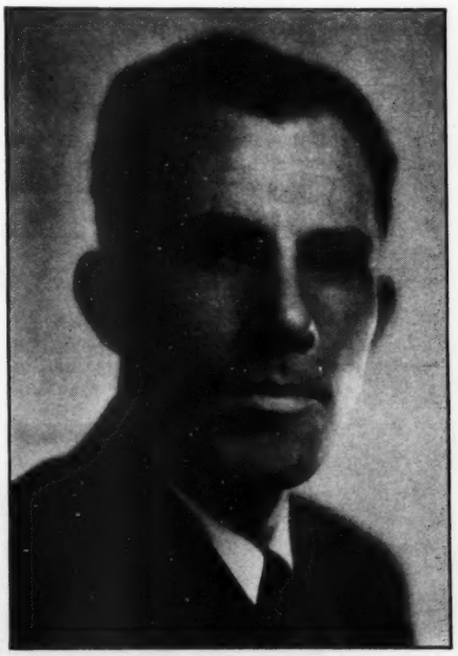
Designed to encourage use of safer trucks and to conserve highways, a new truck-weight bill has become law in Wisconsin. The maximum gross weight of four-wheel-drive trucks is fixed at 28,000 pounds, an increase of 4,000 pounds over that permitted rear-drive trucks. When the gross vehicle weight of a four-wheel-drive truck exceeds 24,000 pounds ,the axle weight limit shall be 18,000 pounds if balloon tires are used, and 16,000 pounds if high-pressure pneumatic tires are used. Up to 24,000 pounds' maximum gross weight all types of trucks are permitted an axle weight of 19,000 pounds. It was pointed out during hearings that the basic construction of four-wheel-drive trucks divides their weight more equally over their driving axles, thus reducing the maximum axle weight, which is the principal factor in the damage to highways by motor vehicles.

International Opens Office in Dallas

International Supply Co. has opened an office at 1121 Liberty National Bank Building, Dallas, Tex., under the direction of Hayes O. Trego, district manager. R. L. Neal is district manager of the office recently opened at 507 Bitting Building, Wichita, Kans.

Jack Benson Covers Gulf Coast for American Steel Derrick

Jack Benson, for the past 10 years sales representative for Republic Supply Co., in Texas, Oklahoma and Kansas, has joined American Steel



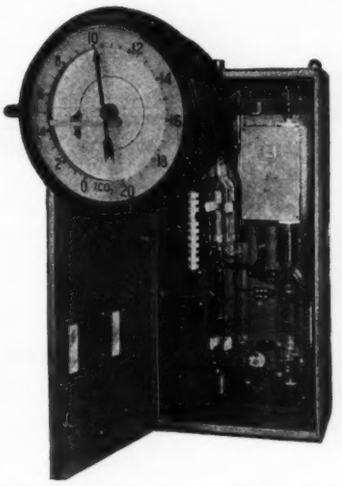
JACK BENSON

Derrick Co., Tulsa. His territory includes all the Gulf Coast of Texas and Louisiana, the southwest district of Texas and part of North Texas. His headquarters will be in American's new ware house at 5820 Navigation Boulevard, Houston, Tex.

New Saturated-Gas Cell Used by the Micromax Recorder

Using a simplified cell assembly which conditions a flue-gas sample by saturating rather than by drying it, an improved equipment announced by Leeds & Northrup, 4934 Stenton Avenue, Philadelphia, Pa., offers steam plants high accuracy and quick response in continuous CO_2 recording with low maintenance.

Overall performance is said to be so improved



over that of earlier dry-gas models that a larger number of engineers responsible for combustion efficiency are expected to find it both economical and satisfactory to measure CO_2 continuously by the otherwise thermal-conductivity method, either to guide manual regulation or to check the correctness of automatic control. The improved Micromax CO_2 recording equipment uses the new saturated-gas cell and operates on alternating current throughout.

Strength, Safety and Simplicity Are Embodied in Rig-Jack

Greater ruggedness, safety and ease of operation are features said to be incorporated in the new No. 2029 heavy-duty Simplex 20-ton rig-jack, manufactured by Templeton, Kenly & Co., Chicago. The standard simplified mechanism used includes triple-toothed pawls. The rack-bar is a heat-treated, chrome-nickel steel forging.

The jack is easily handled with the new-type carrying handles which drop out of the way when the jack is being operated. The base has a large area and is arched for stability and strength. The standard toe is 2½ by 1¾ inches. The jack is furnished with a 6-foot oval second-growth hickory lever-pole. Oval poles are stronger because of their greater cross-sectional area.

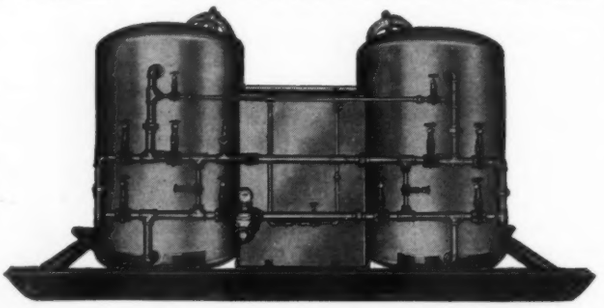
Homestead Valve Manufacturing Co. has appointed Warren Bruce & Co., 3908 Olive St., St. Louis, Mo., and Proctor Engineering Co., Inc., 106 Key Highway, Baltimore, Md., representatives for the sale of its line of quarter-turn plug-valves, protected-seat hydraulic-operating and boiler blow-off valves.

WATER-SOFTENER DESIGNED FOR OIL-FIELD USE

A portable zeolite water-softener, designed especially for oil-field use, is announced by Continental Chemical Co., Sand Springs, Okla. It softens and filters almost any type of water, preventing boiler scale and consequent shutdowns and refluing jobs. It is designed as a portable unit to meet the requirements of all phases of drilling operations.

This water-softener is made in three sizes and built for pressures up to 350 pounds. There are small units for diesel cooling water and large jobs for steam rotary rigs. Automatic pressure relief valves prevent building up of dangerous pressure by accident. Valves are of nonfreezing type, an electrical alarm type meter recording the quantity of water for each regeneration, rings a bell when it is time to change units. The zeolite is high-temperature fused and is not injured by hot or dirty water. The machine is portable with any standard winch truck and ruggedly built to withstand hard use.

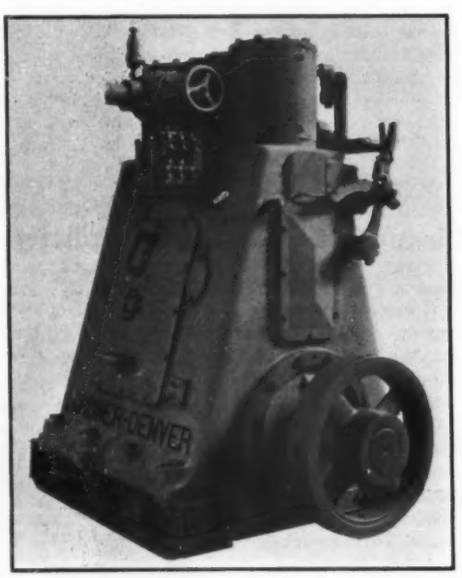
The Continental water-softener is said by the manufacturers to be a more efficient zeolite water-



softener because it is designed specifically for oil-well drillers, for whom its portability and general construction make it particularly valuable. Operating costs are said to be low.

New Gardner-Denver Engine Is Designed for Drilling Uses

The new vertical twin-cylinder roller-bearing steam drilling engine introduced by Gardner-Denver Co., Quincy, Ill., is a compact machine suitable for driving the rotary-table directly, at the same time having sufficient power to serve as a stand-



by for driving the drawworks. The engine is also suitable for driving a mudpump, by means of V belts, flat belt or chain drive. The engine is reversible and is of the adjustable cutoff type. The cutoff is adjusted manually to met load requirements.

The steam-valves are of the inside admission piston valve type; light, perfectly balanced and easy to reverse. The valves are tight under high pressures and with superheated steam. The steam-cylinders are insulated with mineral wool covered by sheet steel. Each end of each cylinder is equipped with an automatic dump-valve, automatically relieving the cylinders of accumulated water.

All moving parts are completely enclosed. In addition to the oil splashed on the moving parts by the crankshaft counterweights, a rotary oil pump furnishes additional lubricant to the crossheads and pins, crosshead-guides and crankpins. The forged-steel crankshaft is of the two-throw center-crank type with cranks at 90 degrees. The shaft is supported by two double-row Timken tapered roller bearings. The shaft projects beyond each side of the frame. Drive may be taken from either side.

Hindenburg Loss Halts Trip

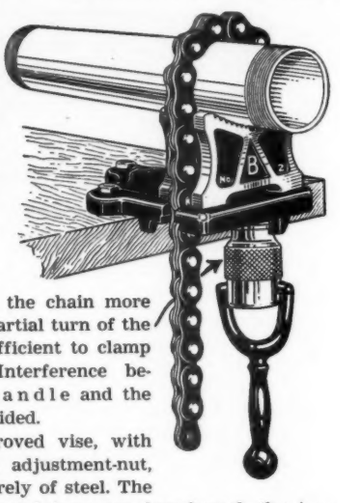
Among those who had engaged passage on the Hindenburg and who were in New York, ready to board the airliner for its eastward trans-Atlantic flight, was E. M. Smith, president and general manager of Emsco Derrick and Equipment Co. Following the explosion which destroyed the ship Mr. Smith flew back to Los Angeles, headquarters of the company, abandoning for the time being his plans for a tour of German, Rumanian and Persian oil fields to get first-hand information concerning drilling and production methods in foreign countries.

Rig and Reel Fortieth Anniversary

Many persons will preserve the current issue of the Rig and Reel Magazine, which is a special number in celebration of the Parkersburg Rig & Reel Co.'s fortieth anniversary. The 36-page booklet, beautifully printed and illustrated, not only tells Parkersburg's important role in 40 years of oil progress, but contains interesting chapters of oil history. An appreciation signed by John M. Crawford, chairman of the board, and David B. Crawford, president, says: "We take pride in the realization that we have played a part in the building of this virile and romantic industry. It has been a delightful experience to mingle with and serve such a group of he men."

Adjustment-Nut on Pipe-Vise Is Heavily Knurled, Elongated

The improved chain pipe-vise announced by Billings & Spencer Co., Hartford, Conn., embodies a new construction feature, the heavily knurled and elongated adjustment-nut. This new feature provides a gripping surface for taking up the slack in the chain more rapidly. A partial turn of the handle is sufficient to clamp the pipe. Interference between the handle and the bench is avoided.



The improved vise, with the knurled adjustment-nut, is made entirely of steel. The base, handle and jaws are drop-forged, the jaws from special-analysis tempered steel, scientifically heat-treated. The chains are heavily constructed for rugged work. Though the vise is light, the drop-forged construction insures maximum strength. It is made in four sizes with capacities from one-eighth inch to 8-inch pipe.

Air-Maze Corp., 812 Huron Road, Cleveland, Ohio, has its new 1937 catalogs ready for distribution. One covers industrial air-filters and the other automotive air-filters.

Ingersoll-Rand Co., 11 Broadway, New York, has issued a catalog describing its Cameron Motor-pumps, compact machines combining electric motor and centrifugal pumps in a single unit.

CONTINENTAL MEN DISCUSS PLANS FOR NEXT YEAR

Continental Supply Co.'s annual sales conference in Dallas, Tex., was attended by more than 100 district managers, assistant district managers, factory representatives and officials in the Dallas office. Factories represented by the company had engineers and officials present to discuss equipment and manufacturing trends.

The business session, presided over by W. J. Morris, president, was taken up largely by discussion of plans for the next year. The banquet was attended by nearly 200 with Frank I. Brinegar, vice president, toastmaster. The principal address of the conference was by Frank Purnell, president of Youngstown Sheet & Tube Co.

Decker Off on Six Weeks Tour of Fields in South America

E. L. Decker, of the Martin-Decker Corp., Long Beach, Calif., has left by Pan-American Airways for a six weeks sales tour in South America. His plans include trips to the principal oil-producing countries in the interest of Martin-Decker scientific drilling and production control instruments and he is taking with him one of the company's new Clipper model weight-indicators.

E. L. Decker introducing new kind of Clipper to Airman Thayer

Leaving from the Grand Central terminal in Glendale he planned to spend the night in Mexico City, then Guatemala City and a few days in Panama, watching the big boats paddle through the canal. From there he planned to fly down the east coast to Barranquilla, Colombia; thence by German plane into interior to Barranca Bermeja and back to the coast again; then by Pan-American Airways on down the coast into Venezuela, visiting the fields around Maracaibo and Caripeto; next crossing over to Trinidad for a few days. From that point he plans flying straight to Miami, Fla., to inspect the bathing and fishing there and he will stop in Houston, Tex., on the return to California to survey Gulf Coast activity.

Heads International of Texas

Richard R. Bloss, formerly vice president and general manager of International Derrick & Equipment Co. of Texas, was made president at a recent meeting of the board of directors. He continues as general manager. In his new office as head of the International of Texas, Mr. Bloss succeeds L. J. Brown. Mr. Brown will continue to serve as a member of the company's board of directors and as president of International-Stacey Corp. The directors of International Derrick & Equipment Co. of Texas were reelected at the meeting of stockholders.

Shows Location of Buried Pipe Without Electrical Contact

The M-Scope which is said to locate buried pipes, measure their depth, and permit the rapid and accurate mapping of underground pipe-line systems, with their branches and supplementary equipment, has been put on the market by Fisher Research Laboratories Sales Co., Board of Trade Building, San Francisco, and 45 Rockefeller Plaza, New York. By means of this instrument, according to the company, surveys can be made readily, records checked, and errors corrected; lost lines, valves, manholes, etc., can be located; unrecorded and illicit connections can be discovered; stealing of oil, gas and water can be detected and stopped; costly exploratory excavations can be avoided; damage to pipe and conduits and to excavating machinery during excavating and ditching can be prevented.

The M-Scope consists essentially of two specially designed radio units, a transmitter and a receiver. For most services two men are required, one for each unit; for others, both units are handled by a single operator. No electrical contact with the object sought is required except when tracing a single member of a compact group of pipes.

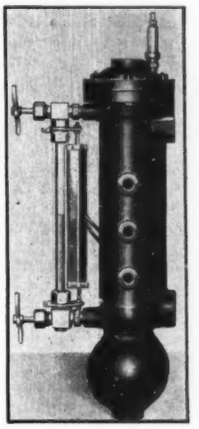
According to the Fisher Laboratories, practically all parts of the M-Scope are standard radio equipment and can be repaired or replaced by any competent radio man. Energy for both units is supplied by standard dry cells which last several months in normal service. Individual units weigh about 8 pounds each. The complete instrument in a carrying case weighs about 22 pounds.

Lucey Opens New Stores

Lucey Products Corp., Tulsa, has opened new stores at Seminole, Okla., and Odessa, Tex. The Seminole store is under the supervision of W. E. McLaughlin, who recently joined the company. O. H. Crowe will have charge of the West Texas district. B. H. Simler, transferred from Oklahoma City, will be in direct charge of the Odessa store. E. M. Johnson, formerly with Bridgeport Machine Co., has joined Lucey's North Louisiana organization, with headquarters in Rodessa.

Water-Gauge Is Easier to Read With New Neon Illuminator

A simple device for the quick and certain reading of water-gauges has recently been developed by Wright-Austin Co., of Detroit, Mich. It consists of a neon light tube and a magnifying lens placed behind the water-gauge, attached by two screw clamps which grip around the top and bottom water-gauge fittings. The water or liquid-filled part of the gauge glass stands out as a broad neon red band, the empty space above appearing as a hair-line red stripe. The water level can be read distinctly, day or night.



Neon rays, as engineers know, do something more than penetrate darkness. They penetrate mist, steam, dust and fog almost as readily. And they can be plainly seen even in daylight. The manufacturer says this new illuminator gives clear visibility of the actual water level at a distance of 150 feet or more under any conditions.

The reading is direct, with no mirrors or reflectors, thus reducing reading. In consequence of this feature there is less danger of burned-out boiler-tubes or more serious accidents.

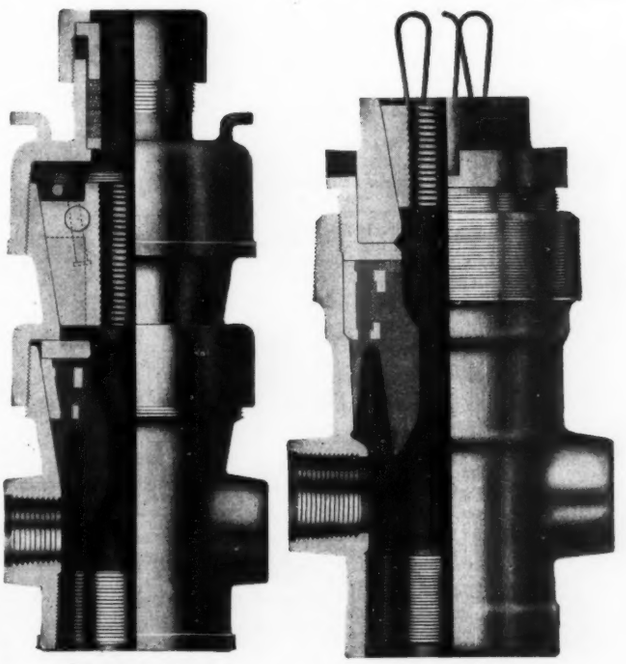
BEAUMONT DEVELOPS NEW STRIPPER TUBING-HEADS

Beaumont Iron Works Co., Beaumont, Tex., is offering to the trade several new types of stripper tubing-heads, designed to permit running and pulling tubing under pressure without the use of blow-out-preventer equipment. A one-piece rubber stripper, or packoff, moulded around solid steel rings, fits in the tapered bowl of the tubing-head body and effects a seal around the tubing. The rubber readily passes pipe collars, and being of a lipped design, it tightens its seal around the pipe as the well pressure increases. The rubber is under stress only to the extent of the well pressure and while tubing is being run and pulled. The entire weight of the tubing-string is transmitted to the tubing-head body rather than to the rubber itself. According to the manufacturer, eliminating the weight of the tubing-string on the rubber should prolong the life of the rubber.

The sectional drawing of the type PX-23SB, 1,000-pound working pressure head shows how the stripper rubber is held down without the weight of the tubing. A regular stuffing-box above the slips will seal in 1,000 pounds well pressure in the event the stripper rubber fails through deterioration. This head without upper stuffing-box is designated as type PX-23S.

The type PX-65 stripper tubing-head is also designed for use where well pressure does not exceed 1,000 pounds. It is available with an upper stuffing-box similar to that on the type PX-23SB. The type PX-65 stripper tubing-head is also made for use on well pressures of 1,500 pounds and 2,000 pounds, being identical in design with the lower-pressure heads except that it is provided with a split steel bushing to reinforce the rubber. This bushing is inserted in the head only after tubing has been run and must be removed before pulling tubing.

The type PX-65 is also available as an adapter head, flanged at the bottom to fit the Beaumont Iron Works type HX high-pressure tubing-heads. This adapter head is designed to hold well pressures up to 1,000 pounds, and is recommended for use on the high-pressure heads for running tubing before the known high well pressure builds up.



Type PX-23SB *Type PX-65*

May

19-21—Tulsa, Natural Gasoline Association of America, annual meeting, Hotel Tulsa.

20—Pine Bluff, Ark., Oil Dealers Association of Arkansas, Pines Hotel.

23-27—Pittsburgh, Pa., National Association of Purchasing Agents (Oil Company Buyers' Group) annual convention, William Penn Hotel.

26-28—Fort Worth, Tex., National Oil Well Superintendents Association.

29—Robinson, Ill., fifth annual conference of the Illinois-Indiana Petroleum Association.

June

1-3—Colorado Springs, Colo., American Petroleum Institute, mid-year meeting, Broadmoor Hotel.

7—Kansas City, Mo., Oil Field, Gas Well-Refinery Workers of America.

10-12—Pennsylvania Grade Crude Oil Association, annual meeting, on Great Lakes S.S. "Seeandbee," sailing from Buffalo, N. Y.

14-19—Paris, France, Second World Petroleum Congress, during International Exposition.

20-26—Findlay, Ohio, Findlay's Golden Celebration of Oil and Gas.

25-26—Dallas, Tex., National Oil Scouts Association, annual meeting, Baker Hotel.

Oil Man's Calendar

June—July

28-July 2—New York, American Society for Testing Materials, fortieth annual meeting, Waldorf-Astoria Hotel, together with fourth A.S.T.M. exhibit of testing apparatus and related equipment.

July

12-13—Santa Fe, N. M., Interstate Oil Compact Commission meeting.

September

(?)—San Francisco, Calif., North American Gasoline Tax Conference.

15-17—Atlantic City, National Petroleum Association, annual meeting, Hotel Traymore.

27—Cleveland, Ohio, American Gas Association, nineteenth annual convention.

September—October

27-Oct. 1—Rochester, National Association of Petroleum Retailers, fifth national convention.

30-Oct. 1.—Tulsa, S.A.E. Fuels and Lubricants Regional Meeting.

October

7-9—Los Angeles, Calif., S.A.E. National Aircraft Production Meeting, Ambassador Hotel.

11-15—Kansas City, Mo.—Twenty-sixth National Safety Congress and Exposition.

11-16—Houston, Tex., Oil-World Exposition.

14-16—Houston, Tex., Independent Petroleum Association of America, annual meeting.

26—New York, Oil Trades Association of New York.

28—New York, S.A.E. Annual Dinner, Commodore Hotel.

29-30—Dallas, Tex., Mid-Continent Oil and Gas Association of Texas, annual meeting.

October—November

27-Nov. 3—New York, National Automobile Show, Grand Central Palace.

November

9-12—Chicago, American Petroleum Institute, eighteenth annual meeting, Stevens Hotel.

December

6-11—New York, Exposition of Chemical Industries, Grand Central Palace.

8-10—Flint, Mich., S.A.E. National Production Meeting.

1938

April

17-21—Dallas, Tex., American Chemical Society.

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Before disclosing your invention to any one, send for blank form:
"Evidence of Conception."
Instructions "How to Establish Your Rights" and complete information FREE!
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Ranches and Farm Lands

350 ACRE irrigation farm and an adjoining 3,469 acre pasture land for sale. Railroad loading shed in center of farm. County highway passes along side of farm. Location 20 miles northwest of Laredo, Texas. Write to JOHN DAVIS, Joyce, Webb County, Texas.

MINNESOTA $40,000. Ranch. 965 acres on lake and river, 40 miles Minneapolis and St. Paul; 100 acres timber pasture, 350 acres cultivated. Got on foreclosed Mgt. $44,000. Improvements worth 16,000. Tiled. Valued at $80,000 when loan was made, now clear. Terms on $14,000. Take undrilled oil lease or interest in prospective lease up to $20,000. 2515 Lyndale Ave. So., Minneapolis, Minn.

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CAPITAL raised for development of Oil and Mining properties. Delaware Charters. J. B. Murrow, 299 Broadway, New York.

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For Sale—Maps

POTENTIAL PRODUCTION MAPS all West Texas and Lea County fields. Most up to date County ownership maps. Write for valuable new illustrated catalog now being printed. SOUTHWEST MAPPING CO., Ft. Worth Nat'l. Bldg., Ft. Worth, Tex.

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SOUTHWESTERN UNITED STATES
Includes all of following states: Texas, Louisiana, Mississippi, Arkansas, Oklahoma, Kansas, also Eastern New Mexico. Shows all oilfields by name and location. Alphabetically arranged list on margin of all discoveries these States during 1936. Lithographed. Size 3 x 4 ft. $1. Same map with pipe lines to date, white print with blue lines $7.50. Send for illustrated catalog describing 400 ownership and field maps in Texas and Louisiana.
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SUCCESSFUL OIL OPERATORS
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842 Kennedy Bldg., Tulsa, Okla.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

Royalties—Production

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Securities and Exchange Commission. Inquiries invited.

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15 years of experience
L. H. WITWER
214 Kennedy Bldg., Tulsa, Okla.

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Oil Royalties and Oil and Gas Leases
Bought and Sold
E. T. Marion
1109 Petroleum Building
Midland, Texas

CONROE TREND. Well spudding in shortly. Five other strong concerns blocking. Paleontology, Geophysics prove big structure. Few choice royalties available $16.00 base. Geologist, Box 903, Houston, Texas.

Business Opportunities

GEOLOGIST desires connection on percentage basis plus expenses. Highest credentials. Address Box G-823, The Oil and Gas Journal, 415 Lexington Avenue, New York City.

Miscellaneous

FOR SALE
Beautifully cut blue white diamond from Burmah, India. Over one carat. Take best offer. Owner, Rt. 1, Box 125, San Luis Obispo, Calif.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

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We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

For Sale—Equipment

WELDERS A.C. and D.C. electric motor and engine driven. Reconditioned. Service Co., 3732 Cedar Ave., Cleveland, Ohio.

FOR SALE: 75—10" Standard cast iron gasket type flange unions, new and reconditioned—cheap. I. T. I. O., Bartlesville, Oklahoma.

FOR SALE: 15—3' x 15' National Tank Company sand hogs—cheap. I. T. I. O., Bartlesville, Oklahoma.

15,000 feet 4" O.D. 7¾ pounds per foot SEAMLESS LINE PIPE.
LARGE STOCK ALL SIZES OF PIPE.
Write, Wire or Phone For Prices
L. B. FOSTER COMPANY
P. O. Box 1647
Pittsburgh, Pa.

FOR SALE: Several used reconditioned Hughes plunger lift units complete for use with 7" casing and 2⅜" OD or 2⅞" OD tubing. I. T. I. O., Bartlesville, Oklahoma

FOR SALE: 25,000' of new 2⅞" OD 10 thread 5.73-lb external upset Pittsburgh seamless steel tubing reamed for Hughes plunger lift. Located at our Oklahoma City warehouse. I. T. I. O., Bartlesville, Oklahoma.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor, Six-Inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio

—TRACTORS—

NEW 10 ton US Gov., Caterpillar Crawlers $695 each, with winch $795. Also 5 ton size, $375.
O. C. Evans, Mt. Sterling, Ky.

FOR SALE: A large stock of 7" OD McEvoy hand operated blowout preventers. I. T. I. O. Company, Bartlesville, Oklahoma.

FOR SALE: Two Cameron No. 5 six stage centrifugal pumps, one with 500 h.p. GE motor, 30,000 bbl. 24 hours, with 600 h.p. GE motor, 35,000 bbl. 24 hours, synchronous motors with panel boards, good condition. MAX ZEIGLER & BROS., Muncie, Indiana.

FOR SALE: Before moving machine shop to new location, selling our entire stock used pipe, casing, valves, pipe connections, pumps, etc. Elliott Machine & Supply Co., Depew, Okla. See A. D. Elliott.

FOR SALE: 6 class C-10 Sullivan pump heads with 15' stroke used in Oklahoma City operations. I. T. I. O., Bartlesville, Oklahoma.

FOR SALE—3 Westinghouse single tandem double acting horizontal gas engines 750 HP, 150 RPM each one direct connected to 625 KW General Electric Generator; also 3 Westinghouse twin tandem double acting horizontal gas engines 600 HP, 180 RPM each one direct connected to 400 KW General Electric Generator. Engines and generators will be sold together or separately. Also 3 Ingersoll-Rand compressors, 3 Platt pumps, and other miscellaneous power house equipment including distribution board, power panels, etc. ROBERT H. REDFIELDS, Smethport, Penna.

WRECKING
USED REFINERY MATERIAL FOR SALE
We have purchased the refinery of the Atlantic Refining Company at Pittsburgh, Pa., and will dismantle the same. We have for sale large quantities of pipe, valves, condensers and tanks of all sizes and description, cracking stills, belt conveyors, water towers and refinery equipment.
ROSEN WRECKING COMPANY
Atlantic Refining Plant
Butler Street
Pittsburgh, Pa.

FOR SALE
Complete compressor plant in good running condition, located in Nowata Field.
40-HP Clark Gas Engine, direct connected to 11¼x7¼x20 single action tandem compressor, and all connections.
16x32 Braden Steel building.
Price: $2,000.00
D. P. Oak,
611 Mayo Bldg.,
Tulsa, Oklahoma.

FOR SALE: LEVI SMITH REFINERY
Clarendon Pa. Address inquiries
Penn-Reserve Oil Co. L. G. Lockward, Sec.
48 Arlington Ave., Caldwell, N. J.

For Sale—Equipment

For Sale—Equipment

Steel Storage Tanks

50—Practically new 80,000-bbl. steel roof tanks, latest type.
125—55,000-bbl. storage tanks at great saving. Prices quoted on request for tanks standing, cut down, or reerected on your grade. Have all other sizes available. All tanks strictly guaranteed.
All kinds refinery equipment, valves, fittings, machinery, pumps and pump repair parts.
Wire—Phone—Write—W. C. Berry

SONKEN-GALAMBA CORPORATION

64 North Second St. Kansas City, Kansas

For Sale—Equipment

2—200 HP Ingersoll-Rand horizontal duplex gas engine driven gas compressor units, 2 Stage Imperial Type 10 G. Also meters, pumps and sundry high and low pressure fittings, pipe and etc. at Saticoy Gasoline plant. M. J. Dwyer, 3790 S. Vermont Ave., Los Angeles, California.

8—165 H.P. Bessemer, type 10, Direct Connected Gas Engine Compressors. C. J. SMITH, 532 Beacon Building, Tulsa, Okla.

FOR SALE — National No. 3 Machine with shear poles, string of tools 15 to 6 inches complete. Steam unit located in Jack County, Texas. GLED OIL COMPANY, Tulsa, Oklahoma.

DIRECTED READER INTEREST
Your ad in these columns will be read by more oil-minded readers than in any other medium in the world. Direct your advertising to these readers through the regular use of this service.
THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

FOR SALE 1 Climax R6U, 142 H.P. GASOLINE POWER UNIT. Complete with Twin Disc clutch. P. A. Henault, Book Building, Detroit, Michigan.

A COMPLETE 1200 bbl. capacity GASOLINE REFINERY located in Shreveport. Formerly operated as the Griswold Refinery or the Cedar Grove Refinery. Apply J. E. Slattery, 1022 Slattery Building. Office Phone 7564, Shreveport, La.

FOR SALE complete equipment of two wells, consisting of derricks, oil well pumping unit, tanks, two gas engines, casing, rods, tubing, line pipes, fittings and etc. Address Peru Oil & Gas Co., Inc. 510 Insurance Bldg., Oklahoma City, Okla.

DIESEL ENGINE—Less than half price. Fairbanks-Morse, 150 H.P., 3 cylinder type Y, Style V, originally directly connected to Generator. Capacity 125 KVA. Complete with starting and circulating equipment. Also 4 Fairbanks-Morse Ball Bearing Motors practically new. One 30 H.P.; One 25 H.P.; One 15 H.P.; One 3 H.P.; AC Current, 440 Volts. Diesel Power Engine School, 1520 McGee St., Kansas City, Mo.

Equipment Wanted

WANTED
STEEL STORAGE TANKS
10,000 bbls. and up in any quantity.
TOP PRICES AND SPOT CASH
Write or wire fully as to condition and location. Address
Box H-783
The Oil and Gas Journal,
Tulsa, Okla.

Incorporations

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Leases—Production

I OWN 480 acres in fee next to Sisne well in Wayne County, Illinois. Will make more liberal lease than any other owner. S. M. Homan, 7205 Exchange Ave., Chicago.

OIL leases block and royalty for sale in Washita and Custer Counties, Okla. J. J. Sallaska, Washita Hotel, Cordell, Oklahoma.

ARKANSAS
Does not have any production (proration) restrictions. The opportunity for quick "payouts" is obvious. Come here and investigate royalty and lease opportunities.
WILLIAM MONROE LAYTON
P. O. Box 411 Texarkana, Ark.

WANTED — Shallow production North and West Texas—also proven leases. Give description, potential acre yield, and cash price. "Petroleros," P. O. Box 383, Dallas, Texas.

OIL and Gas Leases and Royalties, some producing and some near drilling wells. In the Permian Basin of West Texas and Lea County, New Mexico.
C. E. POYNOR
Naylor Hotel Building, San Angelo, Texas.

SOUTH TEXAS oil and gas leases. New 88 form with low rentals. Dealers or brokers only. H. H. WHITE, P. O. Box 674, San Antonio, Texas.

WANT TO MAKE DRILLING CONTRACT With some reliable Company who will take an Interest in large drilling block, and drill test well for Oil and Gas, all leases located on Good Structure, carrying splendid Geological report, all leases recently secured and well connected, splendid chance to open new oil and gas field, further information furnished upon request; lease located in north Mississippi. P. O. Box 82, Sebastopol, Mississippi.

WELL WANTED—On 1,000 acre block in Permain Basin, Texas, South-East of Howard-Glasscock pool. Howard-Glasscock has produced 60,000,000 bbls. past six years. Major company recently paid bonus for extention of lease near this block. Will give 6/8 of oil and gas under block for well to go 2,700 feet. Good possibility commercial production at less than 2,000. Address Box 1082, Austin, Texas.

AM ready to figure with you on your bargains in Lands in fee or any type of Oil properties to buy or sell. My thirty years in this business here enables me to know values large or small. E. B. REEVES, Box 475, McLean, Gray County, Texas.

FOR SALE—424 Acre tract in Pushmataha County Oklahoma for $4.00 per acre, including fee and royalty. Not leased. Maps and Certificate of Title furnished. W. D. Ford, 522 West Brady St., Tulsa, Okla.

Mailing Lists

ROYALTY INVESTORS from pipe line records. Lease investors. Oil Industry Mailing List Co., 909 Tulsa Loan Building, Tulsa, Oklahoma.

YOU have your organization and can give good service. Does the Billion Dollar Petroleum Industry know it? Have you made it easy for oil men to order from you? If not, the surest and best way to promote the merits of your company is to use The Oil and Gas Journal —the oldest and best petroleum publication in the world.

Leases—Production

NEW MEXICO—My weekly scout report furnishes complete and reliable information on New Mexico developments. Send for copy. W. S. Patterson, Santa Fe, New Mexico.

WILL BUY prospective oil lease, or not less than ¼ interest in not less than 40 acres in Kansas. Will furnish capital to develop. Write 2515 Lyndale Ave., South Minneapolis, Minn.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

LEASES near Paluxy-Trinity sand Oklahoma Ordovician tests now drilling where there is chance for 50 to 1 return few weeks. E. CROFT, Proctor, Texas.

Specializing leases twenty acres up dollar acre, East Tex., La., S. Ark. Owners—Attorney. Box 1122, Little Rock, Ark.

FOR SALE—20 to 30 acres, 15 year Non. Partic. Royalty under clear 160 joins Southern Test in Sec. 19-15-22 Trego Co. $20.00 per acre. Ten year leases on Trend southwest from this well $1.00 rental $1.50 bonus, other leases and Royalties, one block in 16 and 17-26 Ness Co. Buxton, Ransom, Kansas.

LANDS Leases, Royalties, anywhere, bought, sold. Lands, $2 acre up. Leases 25c acre, up. Advise needs. American Investment Co., Houston, Texas.

OKLAHOMA UNDEVELOPED MINERALS—raw lands. $2.00 per acre. Geo. McCoy, 3623 So. Union, Tulsa, Oklahoma.

Situations Wanted

PETROLEUM Engineer, University graduate, twelve years' experience in land, geological and engineering departments, desires connection with a reliable company. Can furnish best of references. Address Box H-730 The Oil and Gas Journal, Tulsa, Okla.

MECHANIC and engine setter of all types of machines. Fully experienced, best of references, sober. Address Box H-761, The Oil and Gas Journal, Tulsa, Okla.

ACCOUNTANT, married, 9 years' general and 6 years' oil experience. References furnished. Desires position with reliable oil Jobber or Refiner. Write Box H-780, The Oil and Gas Journal, Tulsa, Oklahoma.

ENGINEER. Young, 12 years experience Oil Refinery Design, Layout and Construction. Have worked in the Far East and Latin America. Location no preference. Address Box H-794, The Oil and Gas Journal, Tulsa, Okla.

MATERIAL MAN. 39 years old, fifteen years experience. Dependable, Non-union. Address Box H-795, The Oil and Gas Journal, Tulsa, Oklahoma.

CUBA was Geophysically investigated and found O.K. Atlantic and Shell appropriated 60 billion acres. Are digging now. My lands first surrounded. Will sacrifice 50 acres at $2,000.00 a piece. Make your own Geophysical survey and choose lands you want, out of 1,000 acres property. Hold my property while surveying. Land entrance cost ½ of 1% oil. 2 miles from best highway and railroad. Roig, Linea 145 Vedado, Havana, Cuba.

EXPERIENCED LAND and lease man desires connection with oil company or independent operator. Will go anywhere. Address 4114 Maryland Ave., Shreveport, La.

PIPING DRAFTSMAN. Experienced in oil refinery and chemical plants. Soon available. Address Box H-792, The Oil and Gas Journal, Tulsa, Okla.

BUDGET SUPERVISOR with several years budgeting experience in financial and operating departments of large corporation. Capable of organizing and supervising Budget Department. Now employed. Write Box H-791, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

REPRESENTATIVES wanted, principal towns Mid-Continent field, for live Coast oil weekly newspaper. Combination reportorial, subscription, advertising work. Exclusive franchises, excellent remuneration. Write National Oil Derrick, 900 Spring Arcade Building, Los Angeles, Calif.

OPERATORS AND HELPERS WANTED for new refinery in Texas. Must have had experience with Dubbs Cracking and Reforming Vacuum and Atmospheric distillation. Give particulars in first letter. Address Box H-790, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Young mechanical engineer with experience in the design of surface pumping equipment. Will consider man with experience in other fields of design. Give experience, references and salary expected. Address reply to American Mfg. Company, Box 710, Ft. Worth, Texas.

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